

Date:

March 10, 2008

To:

Bill Neuffer

EPA/OAQPS/Metals and Minerals Group

From:

Katie Hanks

Subject:

Cost, Environmental and Energy Impacts for the Proposed Revisions to the NSPS

for Non-Metallic Mineral Processing Plants (40 CFR Part 60, subpart OOO)

I. Introduction

To meet the requirements of section 111(b)(1)(B) of the CAA, the Environmental Protection Agency (EPA) is currently conducting the second review the new source performance standards (NSPS) for the non-metallic mineral processing plants (NMPP). The NMPP NSPS was promulgated on August 1, 1985 (40 CFR Part 60 subpart OOO, 50 FR 31328) and subsequently reviewed in 1997. Subpart OOO requires new, modified, or reconstructed affected facilities at NMPP to achieve emission levels that reflect the best demonstrated system of continuous emission reduction, considering cost, non-air quality health, environmental, and energy impacts. These emission levels, referred to as "best demonstrated technology (BDT)," are specified in subpart OOO.

The purpose of this memorandum is to document the methodology used to estimate the cost, environmental, and energy impacts associated with the second NSPS review. The impacts in this memorandum are based on a projected number of new sources (documented in a separate memorandum). As background, Section II of this memorandum summarizes the impacts estimated at promulgation (1985) and for the first (1997) NSPS review. Section III discusses the impacts of the second NSPS review (scheduled for promulgation in 2009), including an overview of the proposed amendments resulting in impacts and the methodology used to develop the impact estimates. Section IV presents an estimate of the number of small businesses impacted, and Section V presents a summary of the impacts estimated for the 2009 NSPS review.

II. Subpart OOO Impacts Estimated at 1985 Promulgation and for the 1997 NSPS Review

New source impacts are considered for the 5 years following promulgation of the standards. The most common control technologies used to comply with subpart OOO include baghouses and wet suppression. Subsections A and B provide a summary of the impacts associated with subpart OOO at promulgation and for the first NSPS review.

A. 1985 Promulgation Impacts

When the NSPS subpart OOO was promulgated, particulate matter (PM) emissions reductions and other impacts were estimated by comparing emissions from affected facilities at

new and expanded plants under the promulgated NSPS standards versus emissions that would have been allowed under State process weight regulations at that time. Baseline emissions (allowed under 1985 state regulations) were estimated to be 50,000 tpy (45,000 Mg/yr). The promulgated NSPS was estimated to reduce the total amount of PM emissions by 45,000 tpy (41,000 Mg/yr), more than a 90 percent reduction in emissions over State process weight regulations at that time.²

The water discharge impacts associated with the promulgated NSPS were estimated to be minimal because baghouses have no water discharge and the water from wet suppression systems adheres to the material being processed until it evaporates.²

The solid waste impact of the promulgated standards was also determined to be very small. It was estimated that 1.5 tons (1.4 Mg) of solid waste are collected for every 276 tons (250 Mg) of material processed. The collected material can usually be recycled back into the process, sold, or used for other purposes. Where no market exists for the solid material, then the material is typically disposed of in the mine or quarry. No solid waste results from wet suppression techniques.²

At the time of promulgation the energy impact was estimated by comparing the energy required for the use of baghouses to the energy required for no control system. The energy impacts attributable to the NSPS were overestimated because: (a) less energy-consuming wet suppression systems could be used in many cases to meet the standards, and (b) some baghouse or wet suppression systems would have been installed to meet State regulations. The energy impact associated with controlling all new NMPP plants constructed by the fifth year was estimated to be 430 terajoules per year. This was estimated to be about a 15 percent increase over the amount of energy that would otherwise be required to meet the industry's projected capacity additions without controls.²

Like for the energy impacts, the cost and economic impacts of the 1985 promulgated rule were estimated by comparing the cost of baghouses to use of no control system. The cost impacts attributable to the NSPS were overestimated because: (a) lower cost wet suppression systems could be used in many cases to meet the standards, and (b) some baghouse or wet suppression systems would have been installed to meet State regulations. The cost analysis indicated that the costs associated with NSPS compliance would not preclude construction of most new NMPP, except for the following plant types (which, as a result, were exempted from subpart OOO):

fixed sand & gravel and crushed stone plants with capacity =25 tph^a

portable sand & gravel and crushed stone plants with capacity =150 tph^a

pumice and common clay plants with capacity =10 tph^a

The nationwide capital costs to install baghouses on all new plants were estimated to be \$125 million (1979 dollars) for the first 5 years the standards were in effect. The nationwide annualized costs associated with the NSPS were estimated to be \$34 million (1979 dollars) in the

^aCapacity is defined in subpart OOO as "the cumulative rated capacity of all initial crushers that are part of the plant." Capacity is provided in tons per hour (tph). The applicability of the NSPS was limited to mineral processing plant exceeding this capacity limit because EPA's cost analysis indicated that the incremental costs associated with baghouse control might preclude construction of new plants processing less than the capacity cutoff.

fifth year. For each mineral industry, the annualized control cost in the fifth year divided by the annual output was less than 2 percent of the price of a ton of product.

B. 1997 NSPS Review Impacts

The NSPS review promulgated in 1997 amended the standards to: (a) reduce or eliminate several of the original rule's paperwork requirements, reducing the costs of emission testing without sacrificing air quality; (b) provide a table specifying the applicability of subpart A (General Provisions for part 60) to subpart OOO affected facilities; and to (c) clarify that facilities located in underground mines are not subject to the NSPS. The 1997 review did not result in increased environmental or cost impacts. Decreased testing and monitoring, reporting, and recordkeeping (MRR) costs were accounted for as part of the Paperwork Reduction Act information collection request (ICR). (See 62 FR 31358, June 9, 1997 for details).

III. Subpart OOO Impacts Estimated for 2009 Promulgation of NSPS Review

A. Overview of Proposed Amendments for 2009 and Associated Impacts

The current subpart OOO NSPS review is scheduled to be promulgated in early 2009. The impacts of concern for the NSPS review are incremental impacts, specifically the difference in impacts associated with the current NSPS (as promulgated and reviewed in 1997) and the impacts associated with any changes in NSPS requirements resulting from the 2009 NSPS review. The impacts are determined over a period of five years following promulgation of the 2009 NSPS revisions. Thus, the affected facilities of concern are those installed from 2009 to 2013. The methodology used to project the number of affected facilities (model plants) installed in this time frame is presented in a separate memorandum. Baseline represents the impacts associated with application of the current NSPS at the model plants installed between 2009 and 2013. The incremental impacts of the 2009 NSPS review are determined by comparison to the baseline impacts. Changes in requirements being proposed as part of the 2009 NSPS review that could result in significant incremental impacts include those summarized in Table 1.

Table 1. Summary of proposed changes to subpart OOO and type of incremental impacts.

Proposed rule change	Type of Incremental Impact
? A reduction in the PM stack emission limit from 0.022 gr/dscf to one of two regulatory options (0.014 gr/dscf or 0.010 gr/dscf).	No change in cost, environmental or energy impact for reasons discussed below. Potential emission reductions were estimated.
? Omission of stack opacity limit for future affected facilities	Reduced testing cost
? A reduction in the fugitive opacity limits from 15% for crushers and 10% for other affected facilities to 12% for crushers and 7% for other affected facilities.	No change in cost, environmental or energy impact for reasons discussed below. Potential emission reductions are not quantifiable.
? A reduction in the duration of Method 9 performance testing from 1-3 hours to 30 minutes	Reduced testing cost
? Add monthly inspection that water is flowing for future affected facilities with water sprays	Increased MRR cost and potential emission reductions associated with shorter duration that excess emissions could occur before being noticed.
? Add repeat Method 9 test every 5 years for future affected facilities without water sprays (e.g., fugitive affected facilities with water carryover, partial enclosure, etc.)	Increased testing cost (occurs after 5-year period upon which impacts are estimated)
? Add baghouse monitoring requirement for future affected facilities to conduct quarterly 30-minute Method 22 VE observation. OR ? Allow bag leak detectors as an option in lieu of M22 periodic monitoring.	Increased MRR cost and potential emission reductions associated with shorter duration that excess emissions could occur before being noticed.
? Omit §60.7(a)(1) notification of commencement of construction/reconstruction	Reduced MRR cost

The proposed changes in emission limits are not associated with any change in the current control technologies being employed by NMPP. The changes in emission limits simply reflect the demonstrated performance of the majority of control technologies being used. A separate memorandum presents emissions test data showing that most of the current technologies are capable of achieving the regulatory options under consideration for the NSPS review. The same control systems installed on future affected facilities should be capable of meeting the regulatory options. While most of the controls for which emissions test data are available easily meet the current NSPS limits, there were a relatively small percentage that did not meet the limits (but later met the limits through a retest, presumably after maintenance was performed) or met the limits with only a small compliance margin. These units are considered to have "marginal" performance. The purpose of lowering the emission limits through the NSPS review is to ensure that NMPP do not choose to install new control systems with only "marginal" performance when most control systems are capable of far better performance. Because so many of the current control systems meet the NSPS limits and regulatory options with a substantial compliance margin no additional control cost or actual emission reduction is anticipated. The "potential" emission reduction associated with lowering the stack concentration limit was estimated for two regulatory options (0.014 and 0.010 gr/dscf). These potential emission reductions are overestimated because the majority of control systems installed on future affected facilities would likely have resulted in emissions at or below the proposed emission limits even in the absence of the proposed revisions to subpart OOO. Also, because no change in control

technology is anticipated, there are no incremental solid waste, water discharge, or energy impacts associated with the 2009 NSPS review.

Unlike for the proposed changes in emission limits, there would be incremental costs associated with some of the changes to the subpart OOO testing and notification, monitoring, reporting, and recordkeeping (MRR) requirements. Some of the proposed changes would result in decreased incremental costs while others would result in increased incremental costs. "Potential" emissions reductions due to the shortened duration that excess emissions could occur before being corrected under the proposed testing and monitoring revisions were estimated. A number of testing and monitoring options were analyzed for fugitive and stack affected facilities. These options are presented in Attachment 1. Subsections B through E below describe the methodology for estimating impacts of 2009 NSPS review regulatory options.

B. Selection of model plants

Typical sized model plants from the proposal BID were used to provide an estimate of the process air flow volume requiring controls. The model plants provide a link between plant throughput (in tph) and the volumetric air flow that requires treatment to meet the NSPS limits. Model plant operating hours were used to convert annual production rates in tons per year (tpy) to tons per hour (tph). The memo documenting new source projections describes the model sizes and operating hours used for each mineral industry.

Two basic model plants were used in development of the NSPS: Model 1 and Model 2. Model 1 includes primary, secondary, and tertiary crushers, 3-4 screening operations, 5-10 transfer points, and a storage bin loading operation. Model 2 includes the same equipment as Model 1 plus an additional grinding mill and bagging machine. For the impacts analysis done at NSPS promulgation, different mineral types were associated with either Model 1 or Model 2. Next, for each basic model type, different plant sizes were considered. The model types and sizes used for the NSPS review impacts analyses are generally the same as the models used for impacts analysis for the promulgated NSPS (unless otherwise noted in Reference 3).

Depending on the plant size and mineral type, the Model 2 plants are based on 9 to 12 emission streams (of varying air flow rate) from different types of affected facilities. According to the models, these affected facility emission streams would be combined and routed to one to three baghouses. The total air flow controlled by the baghouses is the same as the total air flow from the 9 to 12 emission streams. However, while NMPP do combine and control emissions from various types of affected facilities with a single baghouse in some cases, we are aware from our recent review of air permits that NMPP can also use many smaller baghouses at subpart OOO affected facilities throughout the plant instead of only one to three baghouses. The baghouse configuration has no effect for some impact estimates but could have a significant effect on the cost impacts associated with ongoing testing and monitoring of future baghouses. Therefore, we assumed 9 to 12 baghouses (as opposed to 1 to 3 baghouses) for purposes of estimating testing and monitoring costs.

Table 2 summarizes the models, number of new model plants projected, and the most typical type of control system, and the number of emission points (used for estimating testing/monitoring costs).

Table 2. Projected Model Plants for NSPS Reviewa

Mineral type	Model type	Model plant tph	Model plant hr/yr	Projected number of new model plants	Typical control systems	Number of emission points (used for testing/monitoring cost estimates)
Crushed and Broken Stone	1	300	2,000	96	Wet suppression	22 fugitive emission points ^b
Sand and Gravel Construction Industrial	1	300 150	2,000 2,000	208 1	Wet suppression	22 fugitive emission points ^b
Clays Bentonite Fuller's Earth Ball Clay	2	25	8,400	1 (Bentonite) 4 (F.E.) 1 (Ball clay)	Baghouse	9 stacks
Gypsum	2	25	8,400	7	Baghouse	9 stacks
Rock Salt and sodium chloride	- 2	25	8,400	1	Baghouse	9 stacks
Sodium Carbonate	2	300	8,400	1	Baghouse	12 stacks
Pumice	2	25	8,400	2	Baghouse	9 stacks
Barite	2	10	8,400	8	Baghouse	9 stacks
Fluorospar	2	10	5,500	1	Baghouse	9 stacks
Mica	2	10	8,400	1	Baghouse	9 stacks

^aNo new model plants are projected in the 5 years following promulgation of the NSPS review for the following mineral types: kaolin, fire clay, common clay, sodium sulfate, gilsonite, talc/pyrophyllite, boron (including borax, kernite, and colemanite), feldspar, diatomite, perlite, vermiculite, or kyanite (including andalusite, sillimanite, topaz, and dumortierite).

C. Baseline

Many States incorporate subpart OOO by reference into their State regulations and impose limits that are no more stringent than subpart OOO. Therefore, the baseline emission limits for purposes of estimating the NSPS review impacts were determined to be the current subpart OOO emission limits (i.e., 0.022 gr/dscf).

We conducted a review of state permits (including selected general permits, minor source permits, and title V permits from each state) to determine whether States typically impose testing and monitoring requirements more stringent than subpart OOO, and if so, whether these state

Ten of the 22 fugitive emission points are estimated to be controlled by wet suppression water sprays (at the inlet and outlet of each crusher and at screens) while the remaining 12 fugitive emission points (transfer points and storage bin loading operations) are estimated to be controlled by water carryover or other means.

requirements would serve as a baseline for determining the impacts associated with the testing and monitoring options under consideration. Attachment 2 summarizes our findings from this permit review. Many of the permits we reviewed did not contain any testing or monitoring beyond what the current NSPS requires. If additional testing or monitoring was required, it was most often found in minor source or title V permits (but was uncommon in general permits). A number of minor source permits also lacked ongoing testing/monitoring requirements. Many crushed stone or sand & gravel plants (the nonmetallic mineral sectors for which the majority of new model plants are projected) operate under general or minor source permits. Therefore, we concluded based on our permit review that the current subpart OOO requirements were the most likely baseline for testing/monitoring.

D. Testing and MRR cost estimates

Algorithms were developed to estimate the testing, monitoring, notification, reporting, and recordkeeping costs associated with baseline and various testing and monitoring options under the NSPS review. The algorithms considered costs separately for each mineral type with projected new model plants. Key cost inputs to the algorithms are discussed in the following paragraphs.

Labor rates. Labor rates were taken from the Bureau of Labor Statistics, *Table 2*. Employer costs per hour worked for employee compensation and costs as a percent of total compensation: Civilian workers, by occupational and industry group, September 2007 (http://www.bls.gov/news.release/ecec.t02.htm). These labor rates were multiplied by 110 percent to account for overhead and benefit packages as is customary for estimating reporting and recordkeeping burden in supporting statements developed pursuant to the Paperwork Reduction Act. The resultant labor rates were: \$108.95 (management), \$94.04 (technical), \$46.47 (clerical). A weighted labor rate of \$104.13 (professional labor + 5% of rate for management labor + 10% for clerical labor) was used for the reporting and recordkeeping cost estimates (similar to how estimates are done in the supporting statement).

Emissions testing cost. Method 5 and Method 9 emissions testing is often done by an outside contractor such that the cost of the emissions testing is a capital cost. The capital cost associated with testing was annualized assuming a 7 percent interest rate and 5-year life (i.e., capital recovery factor [CRF] of 0.244). To calculate annualized costs, the CRF was multiplied by the capital cost of testing. A test cost of \$7,000 was used for Method 5 tests. Three-hour Method 9 tests were assigned a cost of \$1300. The cost of Method 9 tests lasting less than three hours was based on the ratio of testing time with the 3-hour Method cost (i.e., \$433 for a 1-hour Method 9 and \$216.67 for a 30-minute Method 9) since labor is the bulk of the Method 9 testing cost.

Monitoring/inspection cost. The cost of periodic checks that water is flowing to water spray nozzles in wet suppression systems was estimated to be \$16 per check per water spray location (10 minutes x technical \$/hr). The cost of periodic 30-minute Method 22 observations of baghouse stacks was estimated to be \$94.04 per observation per baghouse (1 hr x technical \$/hr), including time to locate the baghouse, conduct the Method 22 readings, and complete field documentation. Additional recordkeeping burden was estimated for recording/filing the results

of water flow checks (0.1 hr x weighted labor rate \$/hr per water spray check) and for Method 22 readings (0.2 hr x weighted labor rate \$/hr per baghouse Method 22).

Bag leak detectors (BLDs) were considered as an alternative to periodic Method 22 VE observations for baghouses. The EPA CEMS Cost Model (available at http://www.epa.gov/ttn/emc/cem.html) was used to estimate the costs of BLDs. As shown from the CEMS Cost Model output in Attachment 3. The annualized cost (including capital recovery) for BLDs is over \$8,500 per baghouse. Since the cost of bag leak detectors is greater than weekly (or less frequent) Method 22 readings, bag leak detectors were not considered further in any of the regulatory options for the NSPS review. However, BLDs could be allowed as an alternative to periodic Method 22 readings.

Notification, reporting, and recordkeeping costs. Notification, reporting and recordkeeping costs were estimated based on the methodology and assumptions used in the supporting statement for subpart OOO.

Summary of testing and MRR costs. The costs per model plant and nationwide costs of various fugitive and stack testing and monitoring scenarios were estimated. Attachment 1 summarizes the testing and MRR costs associated with various options. The overall impacts associated with the selected option are summarized in Section V of this memorandum. Testing and MRR costs were estimated for years 1-5 following promulgation of the revised NSPS and for years 6 and later. Although not considered as part of the impacts for the NSPS review, the year 6+ costs were included because they reflect the costs associated with 5-year repeat emissions tests. The year 6+ costs are useful for informing decisions regarding ongoing testing requirements.

E. Potential PM and PM_{2.5} emissions reductions

The potential emission reductions are associated with lowering the stack emission limit and with increased testing and monitoring (based on potential excess emissions from malfunctioning controls in the absence of the increased testing and monitoring). "Potential" emission reductions reflect an estimate of the emission reduction that could be gained from the proposed changes to subpart OOO that will ensure that the better performing control systems of today are installed and properly maintained for future affected facilities.

Potential PM reduction from more stringent emission limits. The potential emission reductions associated with reduced fugitive opacity limits (i.e., from 15% to 12% for fugitive crushers, and from 10% to 7% for other fugitive affected facilities) are not readily quantifiable.

To estimate the potential PM reduction associated with lowering the subpart OOO stack emission limit, the gas flow rates and operating hours for each model plant were multiplied by the applicable PM gr/dscf limit using the equation below to arrive at the PM tpy associated with baseline (the current NSPS limit of 0.022 gr/dscf) and each regulatory option (0.014 or 0.010 gr/dscf).

PM tpy = [Limit gr/dscf] X [model total gas flow (cfm)] X [60 min/hr] / [7000 gr/lb] / [2000 lb/ton] X [model hr/yr]

Next, the projected number of model plants to be installed from 2009 to 2013 was multiplied by the PM tpy for each model to arrive at a PM tpy for each mineral. Finally, the PM tpy emissions and reductions for each mineral type were summed to arrive at nationwide estimates. Table 3 summarizes the potential emission reductions associated with lowering the emission limits to either of the regulatory options.

Table 3. Summary of Nationwide Air Impacts for Subpart OOO

Mineral type ^a	No. new model	Baseline emissions (at 0.022 gr/dscf) for new models (tpy)		ion reduction (tpy) ry options 0.010 gr/dscf
Crushed & Broken stone	96	unquantified	unquantified	unquantified
Sand & Gravel:	The same of the same of	THE RESERVE WAS ARREST		
Construction Industrial	208	unquantified unquantified	unquantified unquantified	unquantified unquantified
Clays:				
Bentonite	1	13	5	7
Fuller's earth	4	51	19	28
Ball Clay	1	13	5	7
Rock Salt/Sodium Chloride	1	13	5	7
Gypsum	7	90	33	49
Sodium Carbonate	1	56	20	30
Pumice	2	26	9	14
Barite	8	90	33	49
Fluorspar	1	7	3	4
Mica	1	11	4	6
Total	332	370 tpy (335 Mg/yr)	134 tpy (122 Mg/yr)	202 tpy (183 Mg/yr)

"No new model plants are projected in the 5 years following promulgation of the NSPS review for the following mineral types: kaolin, fire clay, common clay, sodium sulfate, gilsonite, talc/pyrophyllite, boron (including borax, kernite, and colemanite), feldspar, diatomite, perlite, vermiculite, or kyanite (including andalusite, sillimanite, topaz, and dumortierite).

Potential PM reduction from testing/monitoring. Potential PM reductions associated with the testing and MRR requirements were estimated differently according to whether the model plant was based on fugitive or stack affected facilities. For both fugitive and stack affected facilities, at baseline NSPS requirements, it was assumed that it would take 1 year for control system problems such as broken bags or plugged wet suppression spray nozzles to be detected. Although theoretically problems could take longer to be discovered since no repeat testing or monitoring is required in the current subpart OOO, it was assumed that problems would be detected through annual control device maintenance or an annual inspection (conducted by either plant personnel or a regulatory agency). It was also assumed that 5 percent of equipment would

experience problems leading to excess emissions (although theoretically all equipment could have excess emissions from time to time).^b

The potential PM reductions for fugitive affected facilities (i.e., in the crushed stone and construction/industrial sand & gravel sectors) were based on an 80 percent control efficiency for fugitive control measures that are working properly versus 20 percent control efficiency for fugitive control measures that are malfunctioning (e.g., some of the spray nozzles plugged). The 80 percent control efficiency was based on information available in AP-42 section 11.19 construction aggregate processing (e.g., comparison of PM emission factors for controlled and uncontrolled affected facilities in Table 11.19.2-1; and the 70 to 95 percent wet suppression control estimate on p. 11.19.1-5). Emission factors from AP-42 Table 11.19.2-2 were used to estimate uncontrolled emissions from Model Plant 1 as shown in Table 4. The resultant total uncontrolled emission rate is 0.1402 lb/ton (21 tph for a 150 tph plant, and 42 lb/hr for a 300 tph plant). For the potential PM reductions associated with monitoring of fugitive emissions, the incremental emissions reduction was calculated based on the difference in 1 year (baseline) of potential excess emissions experienced by 5 percent of equipment and the time period excess emissions that could occur under the NSPS review options (e.g., 1 year to catch problems at baseline versus monthly under the NSPS review when monthly checks of water flow are required).

Table 4. Estimated Uncontrolled Fugitive Emissions for Model Plant 1

Unit type with AP-42 factor	No. units for Model 1	AP-42 uncontrolled emission factors, lb/ton total PM	Model 1 total PM,
Primary crushing	1	0.0024 ^a	0.0024
Secondary crushing	1	0.0024 a	0.0024
Tertiary crushing	1	0.0054	0.0054
Screening	4	0.025	0.1
Fines screening	NA	0.3	0
Fines crushing	NA	0.039	0
Conveying	10	0.003	0.03
TOTAL	1)		0.1402

^a Footnote in 8/04 version of AP-42 says PM10 for tertiary crushers can be used as upper limit for primary and secondary crushing

The potential PM reductions for stack affected facilities were based on excess emissions that could occur if baghouses malfunction (e.g., have a torn bag). Emissions data indicate that NMPP baghouses with torn bags could be expected to have emissions on the order of 0.04 gr/dscf (if not greater). Therefore, potential excess emissions were estimated as the difference between 0.04 gr/dscf and 0.014 gr/dscf (the regulatory option selected for the proposed NSPS review). The incremental emissions reduction associated with monitoring of stack emissions was calculated based on the difference in 1 year (baseline) of potential excess emissions at 5

^bIn the algorithms used for estimating subpart OOO impacts, an assumption that 5 percent of equipment experiences excess emissions is mathematically equivalent to an assumption that all equipment has excess emissions 5 percent of the time.

percent of equipment and the time period excess emissions that could occur under the NSPS review options (e.g., 1 year to detect problems at baseline versus quarterly under the NSPS review when quarterly 30-minute Method 22 readings are performed).

Potential PM_{2.5} reduction. The fraction of PM emissions that is PM_{2.5} varies depending on mineral type, affected facility, and the control system used. An estimate of PM_{2.5} was based on limited information from the 1982 Background Information Document (BID) and AP-42. Table 2.5 of the 1982 BID contains some particle size data for a few mineral and affected facility types. Based on the information in BID Table 2.5 and AP-42 (i.e., the ratio of PM_{2.5} to total PM emission factors), it appears that 5 percent PM_{2.5} is a reasonable estimate for the crushed and broken stone sector. Zero percent was assumed for gypsum because BID Table 2.5 indicated 0 percent PM_{2.5} for one gypsum process and no additional PM_{2.5} relevant data were available in AP-42. A PM_{2.5} fraction of 20 percent was used as a ballpark for clays based on the range of data in BID Table 2.5 (3 to 65 percent PM less than 2 microns) and in AP-42 for pulverized minerals. The clay section of AP-42 provided no relevant information. The PM_{2.5} data in hand are extremely limited so the fraction of PM_{2.5} should be viewed as only a rough ballpark. The overall nationwide fraction of total PM that is PM_{2.5} was estimated to be six percent based on the relative emission reductions for each mineral type.

IV. Number of Small Businesses Impacted by the 2009 NSPS Review

Small business size standards from the U.S. Small Business Administration (http://www.sba.gov/idc/groups/public/documents/sba_homepage/serv_sstd_tablepdf.pdf) indicate that firms (i.e., individual plants or corporations) with less than 500 employees are considered to be small businesses for the mineral types with projected new model plants. The percentage of firms with less than 500 employees (for a given NAICS) was obtained from "Statistics from the U.S. Census Bureau, Statistics of U.S. Businesses 2005" (http://www.census.gov/epcd/susb/latest/us/US21.HTM and http://www.census.gov/epcd/susb/latest/us/US31.HTM). This information was used to project the number of new model plants that may be small businesses assuming that each small business owns a single affected plant, as shown in Table 5. Based on the percentages of firms with less than 500 employees, it is estimated that up to 318 of the 332 projected new model plants (96 percent) could be small businesses.

Table 5. Projected number of new model plants that could be small businesses.

Mineral type	No. new model plants	Estimated number of small businesses	Percent of firms with less than SBA 500 employees	NAICS
Crushed & Broken stone	-96	92	95.7%	21231
Sand & Gravel:	0			
Construction	208	202	97.3%	212321
Industrial	1	1	87.5%	212322
Clays:	0			
Bentonite	1	1	82.9%	212325
Fuller's earth	4	3	82.9%	212325
Ball Clay	. 1	1	73.9%	212324
Rock Salt/Sodium Chloride	1	1	78.4%	212393
Gypsum	7	6	92.3%	212399
Sodium Carbonate	1	1	50.0%	212391
Pumice	2	2	92.3%	212399
Barite	8	6	78.4%	212393
Fluorspar	1	1	78.4%	212393
Mica	= 1	1	92.3%	212399
Total	332	318 (96% of model plants)	7.	

^aNo new model plants are projected in the 5 years following promulgation of the NSPS review for the following mineral types: kaolin, fire clay, common clay, sodium sulfate, gilsonite, talc/pyrophyllite, boron (including borax, kernite, and colemanite), feldspar, diatomite, perlite, vermiculite, or kyanite (including andalusite, sillimanite, topaz, and dumortierite).

V. Summary of Impacts Associated with the 2009 NSPS Review

Table 6 summarizes the nationwide incremental cost impacts, potential incremental PM and PM_{2.5} emission reductions, and number of small businesses associated with the 2009 NSPS review. The methodology used to arrive at these incremental impact estimates is presented in this memorandum. The impacts shown in Table 6 are based on the following regulatory options selected for inclusion in the 2009 NSPS review:

- Stack PM concentration limit of 0.014 gr/dscf
- Omission of the 7% stack opacity limit
- Revised fugitive emission limits of 12% for crushers and 7% for other fugitive affected facilities
- Reduced Method 9 test duration for fugitive affected facilities (reduced to 30 minutes)
- Added monthly inspection that water is flowing for future affected facilities with water sprays
- Added repeat Method 9 testing every 5 years for future affected facilities without water sprays (e.g., fugitive affected facilities with water carryover, partial enclosure, etc.)
- Added quarterly 30-minute Method 22 VE observations for baghouses
- Omission of §60.7(a)(1) notification of commencement of construction/reconstruction

Table 6. Summary of Nationwide Cost and Air Impacts for the Proposed Subpart OOO NSPS Revisions

Mineral type ^a	No. new model plants	Est. of small businesses ^b	Total potential PM emission reduction ^c , tpy	Percent PM _{2.5} ^d	Potential PM _{2.5} emission reduction ^c , tpy	Incremental capital cost ^e , \$	Incremental annualized cost, \$/yr	Incremental annualized cost per plant, \$/yr
Crushed & Broken stone	96	92	111	5	6	(457,600)	187,860	1,957
Sand & Gravel:				The state of the s			AND SECOND	Asia militari di p
Construction	208	202	241	5	12	(991,467)	407,029	1,957
Industrial	1	1	1	5	0.03	(4,767)	1,957	1,957
Clays:				77 177 177 18			12 (2 (3)	
Bentonite	1	1	5	20	1	(11,700)	1,270	1,270
Fuller's earth	4	3	21	20	4	(46,800)	5,080	1,270
Ball Clay Rock Salt/Sodium	1	1	5	20	1	(11,700)	1,270	1,270
Chloride	1	1	5	5	0.3	(11,700)	1,270	1,270
Gypsum	7	6	37	- N		(81,900)	8,889	1,270
Sodium Carbonate	1	1	23	5	1	(15,600)	1,697	1,697
Pumice	2	2	10	5	1	(23,400)	2,540	1,270
Barite	8	6	10 37	5	2	(93,600)	10,159	1,270
Fluorspar	1	1	3	5	0.2	(11,700)	1,270	1,270
Mica	1	318	5 503 tpy	5	0.2 28 tpy 25 Mg/yr	(11,700)	1,270	1,270
Total	332	(96%)	456 Mg/yr		(6% of total PM)	(1,773,633)	631,560	1,902

^aNo new model plants are projected in the 5 years following promulgation of the NSPS review for the following mineral types: kaolin, fire clay, common clay, sodium sulfate, gilsonite, talc/pyrophyllite, boron (including borax, kernite, and colemanite), feldspar, diatomite, perlite, vermiculite, or kyanite (including andalusite, sillimanite, topaz, and dumortierite).

^bBased on U.S. Census Bureau, Statistics of U.S. Businesses 2005 (http://www.census.gov/epcd/susb/latest/us/US21.HTM). Assumes that each small business owns a single affected plant.

^cIncludes *potential* emission reduction associated with lowering the stack emission limit from 0.022 gr/dscf to 0.014 gr/dscf and the *potential* emission reduction associated with increased testing and monitoring (based on potential emissions from malfunctioning controls). *Potential* reductions may be overstated because most baseline control devices already perform at 0.014 gr/dscf (such that no additional emission reduction would be gained from lowering the limits to 0.014 gr/dscf).

^dThe split between PM and PM_{2.5} varies depending on mineral, process, and control system used. The percent PM_{2.5} is a ballpark figure based on the limited available information in AP-42 and the 1982 BID.

No additional cost is required for control equipment. The incremental cost differences are associated with changes in the MRR requirements. There is a negative capital cost because the revised NSPS would reduce costs of initial testing requirements by (a) allowing a 30-minute Method 9 test instead of a 1-hour test for fugitive affected facilities; and (b) by omitting the 7% stack opacity limit and associated initial testing from subpart OOO.

References:

- 1. U.S. EPA, OAQPS, Nonmetallic Mineral Processing Plants Background Information for Proposed Standards, EPA-450/3-83-001a. April 1983. pp. 6-2, 6-7, 7-5, and 8-54.
- 2. Standards of Performance for New Stationary Sources; Nonmetallic Mineral Processing Plants; Final Rule. August 1, 1985. 50 FR 31328.
- 3. Memorandum from Katie Hanks and Melissa Icenhour, RTI International, to Bill Neuffer, EPA/OAQPS. February 11, 2008. New Source Projections for the Proposed Revisions to the NSPS for Non-Metallic Mineral Processing Plants (40 CFR Part 60, subpart OOO)
- Memorandum from Katie Hanks, RTI International, to Bill Neuffer, EPA/OAQPS. March 14, 2008. Summary of Emissions Test Data Used in Review of the Non-Metallic Mineral Processing NSPS (40 CFR Part 60, subpart OOO).
- 5. U.S. EPA, OAQPS, Air *Pollution Control Techniques for Non-Metallic Minerals Industry*, EPA-450/3-82-014. August 1982. pp. 4-1 to 4-7.
- Memorandum from Katie Hanks, RTI International, to Bill Neuffer, EPA/OAQPS. September 28, 2007. Summary of State Permit Requirements and Facility List for Non-Metallic Mineral Processing Plants Subject to NSPS (40 CFR Part 60, subpart OOO).

Attachment 1

Cost Impacts of Various Testing and Monitoring Options

Attachment 1A: Selected Scenario Summary and Detailed Algorithm Sheets

Attachment 1B: Summaries of Other Testing/Monitoring Options Considered

Attachment 1A: Selected Scenario Summary and Detailed Algorithm Sheets

Initial M9 Monthly water flow check for water sprays Repeat (every 5 ym) M9 for affected facilities

Stack Teating: Stack (BH) Monitor control

Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO:

Mineral type	No. new model plants	Baseline capital coal	18	Baseline annualized cost	Post-revisi capital cos		Post-revision annualized cost		erence in Ital cost	Difference in annualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$/ton)	cost	ence in annualized per plant
Orushed & Broken stone	96	8	915,200	\$ 328.276	5 4	57,600	\$ 516,13	4 8	(457.600)	\$ 187,860	111	\$ 1,6	92 \$	1,95
Band & Gravel:	7.2	2075 H						AS SUS		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Charles and the same of the sa		2000年	
Construction	208	5	1,982,933	\$ 711,262	\$ 90	1,467	\$ 1,118.28	1 \$	(991,467)	\$ 407,029	241	5 1,6	92 5	1,95
Industrial	. 1	3	9,533	\$ 3,420	\$	4,767	\$ 5,37	6 5	(4,767)	\$ 1,957	1	5 3,3	84 \$	1,96
lacytes		and the same of		198	The same of		Marine State	1			-	The same of the sa		
Kealin	None	The state of the s			ENEST		THE VALUE	2/1		STATE OF THE PARTY.	THE PARTY OF THE P		1000	
Firectory	None				ENAME.						MARRIAGO SE		-	
Bentonite	1 1	\$	74,700	\$ 19,320	5 (33,000	\$ 20.56	0 5	(11,700)	5 1,270		\$ 2,2		1,27
Fuller's earth	4	\$	298,800	\$ 77,281		52,000	\$ 82,36		(46,800)	\$ 5,080	2	5 2.2	33 5	1,27
Ball Clay		\$	74,700	\$ 19,320	5 6	33,000	\$ 20.56	0 \$	(11,700)	\$ 5,080 \$ 1,270	1	5 2.2	33 \$	1,27
Common Clay	None	(c) let transfer		(1) F (1) (1) (1) (1) (1) (1) (1)	PUSHERNATE		VI BURELLA SER	100		PERSONAL PROPERTY.			ALC: N	
Rock Salt/Sodium Chioride		\$	74,700	\$ 19,320		13,000	\$ 20,56		(11,700)		1	5 2.2		1,27
Sypeum	7	\$	522,900	\$ 135,241		1,000	\$ 144.13		(81,900)		4	\$ 2.2	33 \$	1,27
lodium Carbonate	3	\$	99,600	\$ 25,396	5 1	14,000	\$ 27.06	2 5	(15,600)	\$ 1,697	2	5 6	85 5	1,69
lodium sultate	None	20 TO 10 TO 15		THE REAL PROPERTY.	COLUMN TO SERVICE STATE OF THE PARTY OF THE					ESCHIOLES ESTABLE		4.0	The state of	
Purrelou	2	\$	149,400	\$ 38,840	5 12	000,85	5 41.18	0 5	(23,480)	\$ 2,540	1	\$ 2.2	33 5	1,27
Manite	None	the same		THE PERSON NAMED IN COLUMN	TOTO TOT		20000			The state of the s	THE PERSON NAMED IN	THE RESERVE THE PARTY OF THE PA	AND STORY	
alc and Pyrophylite	None	21 10			HE RES		HE CONTRACTOR	MIDIS		EXCEPT A DIS	CONTROL OF SOUR		(A)	
ioran	None						A STATE OF THE STA	1			OU GOTTON		100	
larite	8	\$	597.600	\$ 154,562		04,000	\$ 164,75		(90,600)		4	\$ 2,5	48 5	1,27
Tuorspar	- 1	5	74,700	\$ 19,320	5 6	3,000	\$ 20,58	0 \$	(11,700)	\$ 1,270	0	\$ 3,6	01 5	1,27
oldigian	None						AND THE RESERVE	8450		HARRY AND SO	ACCOUNT OF THE PARTY OF		E412.52	
listomite:	None				No. of Contract of		10 10 10 10 10 10 10 10 10 10 10 10 10 1	45		A STATE OF THE PARTY.	C. PALL SHIP	PIENSES NO	1200	
Perlife	None	TO SECOND			100000		Maria Control	5/15/2			THE RESERVE	STATE OF THE PARTY		
/ermiculite	None	AREA E	NAME OF		Name of Street			3111			ACCOUNT OF STREET	The state of the state of the state of		
fica .	t.	5	74,700	\$ 19,320	8 (33,000	\$ 20,56	0 5	(11,700)	\$ 1,270	0	\$ 2,5	48 5	1,27
ynnite	None		10.00	The state of the s						The state of the s		With the second section 200		
otal	332	\$	4,949,467	\$ 1,570,676	5 3.17	5.833	5 2.202.23	7 5	(1,773,633)	8 631,560	369	S 1.7	13 5	1.90

334 Mg/yr

1889 5/Mg

Summer

Summary of Nationwide Test Mineral type	No. new model	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Difference in capital cost		Difference in annualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$/ton)	Difference in annualized cost per plant
Crushed & Broken stone	96	The Part of the Pa	14,995	249,600	443,389	\$ 249	600	\$ 428,394	111	\$ 3,858	\$ 4,462
Sand & Gravett	SELECTION STREET	A CONTRACTOR OF THE PARTY OF TH	The second second	The state of the s		-	100000	100000	AND DESCRIPTION OF THE PARTY OF		
Construction	208		32,489	540,800	950,677		800	5 928,166	241	\$ 3,858	\$ 4,465
Industrial	- 1		156	2,600	4,619	5 2	600	5 4,462	1	\$ 7,716	5 4,460
Clays:	AND DESCRIPTIONS	STATE OF THE PARTY		The same of the sa	THE RESERVE	1	neces b		Department of the	The second second	
Kaolin	None		KINDS COLUMN	12 53 20	DAY SEEDING THE	479(AUE)				THE RESERVE TO SERVE	100 miles (100 miles (
Firecisy	Nane			A STATE OF THE PARTY OF	A Contract	A Company of the Comp	2531		THE RESERVOY		
Bentonite	1		156		4,291			\$ 4,135	1	\$ 7,272	\$ 4,130
Fuller's surth	4		625		17,185	\$		\$ 16,540	2	\$ 7,272	\$ 4,135
Ball Clay	1		156		4,291	8	-	\$ 4,135	1	5 7,272	\$ 4,135
Common Clay	None			1000000			570	A PROPERTY OF	DESIGNATION OF THE PERSON		
Rock Salt/Sodium Chloride	1	-	158		4,291	\$		\$ 4,135	1	\$ 7,272	\$ 4,135
Gypsum	7		1,093		30,039			\$ 28,946	4	5 7,272	\$ 4,138
Sodkim Carbonate	1		156		5,670	5		\$ 5,513	2	\$ 2,225	\$ 5,613
Sodium sulfate	None	THE RESERVE TO SERVE THE PARTY OF THE PARTY						Marie William	THE STATE OF THE S	The second second	A STATE OF THE STA
Pumice	2	100	312		6,583	1.5	*	\$ 8,270	1	\$ 7,272	\$ 4,13
Gilsonite	None		NO DESCRIPTION OF THE PERSON O	MARCHEN		NO. OF LAKE	1500				THE STREET STREET
Talc and Pyrophylite	None			25-524 EU		Con Labor					
Boron	None		THE RESERVE OF THE PARTY OF THE	100000000000000000000000000000000000000	The section	A CONTRACTOR	201		T-0-12 7 17 64	A STATE OF THE PARTY OF THE PAR	
Borito	6		1,250		34,331	8	-	\$ 33,081	4		
Fluorspar	1		156		4,291	\$	-	\$ 4,135	0	5 12,671	5 4,135
Feldspar	None	Pro De Contra de la contra del la contra de		100 W. TOWN	All Controls	7230500	883		THE RESERVE AND ADDRESS OF THE PARTY OF THE		
Diatomite	None	The state of the s	THE RESERVE	The State of the S	THE PARTY OF	93.673	200	HI CONTRACTOR	TESTINE NO. 100		THE RESERVE OF THE PARTY OF THE
Perlite	None	THE RECEIPTION OF THE PARTY.	NO STATE OF THE PARTY	ALISTON STATE		A CONTRACTOR OF THE PARTY OF TH	DOM:				MARKET STORY
Vermiculite	None		The second second	1	2000	CONTRACTOR OF THE PARTY OF THE	The last	LICANIE STATE	DESIGNATION OF THE PERSON OF T	Control of the Contro	Park Street, S
Mica	4		156		4,291	8		\$ 4,135	0	\$ 8,296	\$ 4,130
Kyanite	None			P. Williams			100	The second second			
Total	332	15	5 51,856	\$ 798,000	\$ 1,525,929	5 793	,000	5 1,474,071	363	\$ 3,999	5 4,440

334 Mg/yr 4408 \$/Mg

Propriet property		value.	HOLE	Residence	
Typical Plant size (tph):		300		p. 6-7 of EPA-450/3-83-001a (April 1983 BID)	
Model Plant No.		1		p. 5-6 of EPA-450/3-83-001a (April 1983 BID)	
Gas flow to baghouses (cfm);		40000		p. 6-2 of EPA-450/3-63-001a (April 1983 BID)	
		8000		However, note that C&B does not typically use BHs. Wet suppression is dominant contro-	
Total gas flow		48000			
Madel hrlyr		2000			
PM at 0.022 gr/dscf (tpy)	10	7425145	belitraugns		
Air Impacts per model:	額	THE REAL PROPERTY.			
	- 6	The second	population		
PM at 0.015 guidect (tpy) Em. Red. for 0.015 (tpy)	- 50		inquaramed inquaramend	The state of the s	
	恩		Material (may)		
PM at 0.01 grided (tpy)	100		peritraugni		
Em. Red. for 0.01 (tpy)	55		beliansupru		
Nationwide air impacts:	96				
No, of new models projected	- 10		politrappra		
N'wide PM at 0.022 gridsof (tpy)	- 8		inquantified		
	80	100			
N'wide PM at 0,015 gridsof (tpy)	100		inquantified		
N'wide em. red. for 0.015 (tpy)	- 68	- NO PO -	inquantified		
N'wide PM at 0.01 grideof (tpy)	100	生 在第	inquantified		
N'wide em. red. for 0.01 (tpy)	200		inquantified		
Testing and monitoring costs:				Mode: 1 includes:	
Total number of fugitive affected facilities to be tested:		22		Primary, secondary, and tediary crushers (assume 6 water sprays here for inlet/outlet of each crusher	
No. with wet suppression sprays		10		3-4 screening operations (assume 4 water sprays)	
No. with carryover or other fugitive control		12		5-10 transfer points (assume corryover/enclosure here for 10 all, facilities)	
Total number of stacks to be tested:		D		storage bin loading operation (assume carryover for bin and enclosure for loading for 2 aff, facilities"	
Nwide baseline testing/monitoring dost				Test cost x no, new plants x no, affected facilities to be tested	
Total Method 9 initial flugitive testing cost		915,200	C	Includes 1-hour tests only	
Total Method 5 initial stack testing cost		910,200	Č	microsis 1-100c seem only	
	- 1		- C		
Total Method 9 Initial stack testing cost	- 5	-	E		
Total n'wide baseline testing/mont.cost:	17.0	2002/2021			
Capital (5), YRS 1-5	5	915,200			
Annualized (annual costs + annualized capital), 5/yr, YRS 1-5	\$	223,309		CRF at 5 yrs, 7% interest = 0.244	
Capital (5), YR-6+	5				
Annualized (annual costs + annualized capital), Sryr, VR 6+	8	20			
Nwide testing/monitoring cost under revised NSPS:					
Requirements for fugitive affected facilities					
Total Method 9 initial fugitive testing cost	5	457,500	C	30-minute tests only	
Total Method 9 repeat fugitive test cost (for wet supp. only)	5	1100 Pine	Chyr		
Check that water flowing for wet suppression sprays	\$	180,553	A	Frequency of water checks (times/yr)=	12
Method 9 for carryover or other fugitive control	5	249,500	C5 yr	30 -minute fests	0
Requirements for stack affected facilities					
Total Method 5 initial stack testing cost	5	. 83	C	M5 test cost if 1 repeat test conducted in 5 years after promulgation	
Total Method 9 initial stack testing cost	\$	*)	C	Method 9 stack opacity limit omitted for new	
Total Mathod 5 repeat stack test cost	5	4.0	C 5 yr		
Total Method 9 repeat stack test cost	5	•	C 5 yr	Method 9 stack opacity limit omitted for new	
Periodic visual inspections of BH	- 5	**	A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's			A	Frequency of 30-min M22 (times/yr) =	4
Total n'wide revised testing/mont; gost;					
Capital (5), YRS 1-5	S	457,500			
Annualized (annual costs + annualized capital), Styr, YRS 1-5	. 5	292,207			
Capital (S), YR 6+	5	249,800			
Annualized (annual costs + annualized copital), Syr, YR 8+	5	241,455		α	
Difference between baseline & revised NSPS					
Capital (S), YRS 1-5	5	(457,600)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests	
Annualized (annual costs + annualized capital), Styr, YRS 1-5	5	68,899			
Capital (S), YR 6+	5	249,600		includes 5-yr repeat test costs	
Annualized (annual costs + annualized capital), 5/yr, YR 6+	5	241,455		indudes 5-yr repeat test costs	
				W. Company	

N'wide reporting and recordkeeping (R&R) costs: N'wide baseline R&R cost:						
One-time costs:						
Read instructions/rule (1 hr per NMPP)	350	9.997				
Planning/report for initial performance tests (30 hr per NMPP)	S	299,902	60,8(a) - report			
Planning/report for repeat performance tests (30 hr per NMPP, 20% fall rate)	5	59,960				
Notification of construction/reconstruction (2 hr per NMPP)	5	19,993	60.7(a)(1)			
Notification of actual startup (2 hr per NMPP)	8	19,993	60.7(a)(3)			
Notification of initial performance test. (2 hr per NMPP)	S	19,993	(b)5.03			
Notification of physical or operational change (2 hr per NMPP)	5		60.7(a)(4)			
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	8	89,971				
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	S					
Annual costs:	020	000000	70227222			
Records of startups, shutdowns, maifunctions, etc. (1.5 hr per NMPP)	5	14,995	60.7(b)	Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet suppression.		
Record monitoring data (0 hrisflected facility)	2	15	60.676(d)	Models based on baghouse or wat suppression		
Semiannual wat scrubber monitoring devation reports	-	100111011111		Approximation and beginning or real approximation.		
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	5	104,966				
Total of one-time costs per year + annual costs (\$/yr) YR 6+		14/990				
N'wide R&R cost under revised NSPS:						
One-time costs						
Read instructions/rule (1 hr per NMPP)	5	9,997				
Planning/report for initial performance tests (30 hr per NMPP)		299,902	60.8(a) - report			
Planning/report for repeat performance tests (30 tir per NMPP, 25% fail rate)	8	74,876		Increased fall rate to 25% for revised NSPS since compliance mergin is smaller		
Planning/report for repeal tests after 6+ vrs	5	299,902				
Planning/report for repeat tests feiled after 6+ yrs (5% fail rate).	5	14,995		Used 5% fall rate because few should fail given the ongoing monitoring.		
Notification of construction/reconstruction (2 hr per NMPP)	\$		60.7(a)(1)	Omitted from NSPS revision		
Notification of actual startup (2 hr per NMPP)	\$		60.7(a)(3)			
Notification of initial performance test (2 hr per NMPP)	5		60.8(d)			
Notification of repeat performance test (2 hr per NMPP) after 6+ yrs	\$		60.8(d)			
Netification of physical or operational change (2 hr per NMPP)	\$	19,992	60.7(a)(4)			
Total one-time costs divided by 5 yrs (5/yr) YR 1-5	\$	88,971		Less than baseline because notification of construction/resonstruction amilted. 5-yr repeat tests not include		
Total one-time costs divided by 5 yrs (5/yr) YR 6+	S	66,978		Includes 5-yr repeat tests		
Annual costs:	-	20000		ATTENDED OF CONTROL		
Records of startups, shutdowns, mailunctions, etc. (1.5 hr per NMPP)	S	14,995	60.7(b)			
Planning/report for annual M9 tests for fugitive points with carryover/other	5	-	56%	18 hr/NMPP with fugitive points to be refeated x 1.05 to account for 5% fail rate		
Record monitoring date:						
Record water flow checks (0.1 hr/water spray/check)	S	119,961	1.7			
Record BH visual inspections (0.5 hr/BH/monitoring event)	5	1.6				
Record BH M22 readings (0.2 hr/BH/monitoring event)	5		20000000	Models based on baghouse or wet suppression		
Semiannual wet scrubber monitoring devation reports	8	-	60.676(d)	Wichels based on bagnouse of wet auppression		
Total of one-time costs per year + annual costs (5/yr) YR 1-5	5	223,927		Er.		
Total of one-time costs per year + annual costs (S/yr) YR 6+	5	201,934	8 0			
Market Control of the		118,961				
Diffrence in R&R costs, \$/yr YR 1-5 Diffrence in R&R costs, \$/yr YR 6+	-	186,939				
Designation of Mark Costs, Styl 114 C		100.000				
to the second se						
CONTROL CONTROL CONTROL CONTROL IN CONTROL CON						
Potential emission reduction from increased testing/monitoring on fugitives			-	0,1402 lb/ton x model tph. Used sum of AP-42 uncontrolled PM factors to get 0.1402. 60% control assumed for		
- Transfer and Anna Carlo and Interfer and Indian - A Street Control of Section 1997		46		functional system and 20% assumed for malfrid lioning system		
N'wide excess PM from maifunctioning fugitive control, bifur		12	*/	Percent of equipment mailunctioning =	5%	
Baseline testing/monitoring:				Assume takes 1 yr to detect problem, although could continue for longer since no testing/monitoring in current		
Hours of excess emissions before noticed (1 yr x hr/yr)		200	n	NSP8		
Total excess emissions before noticed (1 yr x nivyr)		12		That at		
Revised NSPS testing/monitoring:		12	170			
Hours of excess emissions before noticed (frequency x ht/yr)		16	17	Assumes problem would be caught:	monthly	
Total excess emissions, toy		10.				
Emission reduction from increased testing/monitoring, tay		11				
Cost effectiveness of increased testing/monitoring (\$/tor), YRS 1-5	5	620		Difference in annualized cost (\$/yr) / Emission reduction (tpy)		
Cost effectiveness of increased testing/monitoring (5/ton), YR 6+	5	2,17	5			

Parameter Typical Plant size (tph):	Vals	300	Note	Reference p. 6-7 of EPA-450/3-63-001a (Apri 1983 Bib)
Addel Plant No.		1		p. 6-6 of EPA-450/3-83-001s (April 1983 BID)
Ses flow to baghouses (cfm):		40000		p. 6-2 of EPA-460/3-83-001e (April 1983 BID)
				However, note that S&G does not typically use BHs. Wet suppression is dominant
		6000		control
Total gas flow		48000		
Andre ht/Ar		2000		
PM at 0.022 grideof (tpv)	Service and		guantified	
DOMESIO ANALOGEO DE CARTA AL	OF HEREIN	ALL SALES	Market Market St.	
Sir Impacts per model:	NAME OF TAXABLE	STATE OF THE PARTY NAMED IN	100000000000000000000000000000000000000	
M at 0.015 gridsof (tpy)	100		quantified	
Ern. Red. for 0.015 (tpy)		Thu and	quantified	
PM at 0.01 gridaci (by)		Un	quantified	
Em. Red. for 0.01 (tpy)			quantied	
N/10000-400/2010000	100000			
lationwide air impacts: 4o. of new models projected	10000	-	quantilied	
Wide PM at 0.022 gridsof (tpy)	1000000		quantified	
	NO.			
(wide PM at 0.015 gridsof (tpy)			quantified	
Pwide em. red. for 0.016 (tpy)	6 S 15	and the	quantified	
No. of Charles of the Control of the Control		3((2))	and the same	
Fwide PM at 0.01 gridsof (tpy) Fwide em, red. for 0.01 (tpy)			quantified quantified	
THE RESERVE THE WAST SEPTEMBER.	PARTIES OF	Up	divenies and	
esting and monitoring costs:				Model 1 includes:
SAME TRICONNELLECTURE CONTRACTOR				Primary, secondary, and tertiary crushers (assume 6 water sprays here for
otal number of fugitive affected facilities to be tested:		22		inlet/outlet of each crusher)
No, with wet suppression aprays No, with carryover or other fugitive control		10		3-4 screening operations (assume 4 water sprays)
No. with carryover or brone require corero.		12		5-10 transfer points (assume parryover/enclosure here for 10 aff. facilities) storage bin loading operation (assume carryover for bin and enclosure for loading
				for 2 aF, facilities)
atal number of stacks to be tested:		0		Page 1997 Control of the Control of
				SERVING TO LOCALISM CONTROL TO A STATE OF THE STATE OF TH
/wide baseline testing/manitoring cost: ctal Method 9 initial fugitive testing cost	\$ 1.9	82,933	C	Test cost x no. new plants x no. affected facilities to be tested includes 1-hour tests only
otal Method 5 initial stack testing cost	5 1,8	02,940	C	HICHARD 1-1900 WHO DOLY
otal Method 9 initial stack testing cost	8		c	
Total n'wide baseline testing/mont, cost:	-		2.5	
Capital (S), YRS 1-5		62,933		
Annualized (annual costs + annualized capital), \$/yr. YRS 1-5		83,838		CRF at 5 yrs, 7% interest = 0.244
Capital (\$), YR 6+	\$			
Annualized (annual costs + annualized capital), \$/yr, YR 5+	\$			
"wide testing/monitoring cost under revised NSPS:				
Requirements for fugitive affected facilities	950 00	600100	1536	
Total Method 9 initial fugitive testing cost		91,467	C	30-minute lasts
Total Method 9 repeat fugitive test cost (for wet supp. only)	\$ 3	91,198	C 5 yr	Vaccional de Construire de Ministrato
Check that water flowing for wet suppression sprays Method 9 for carryover or other fuolities control		91,198 40,800	CSVI	Frequency of water checks (times/yr)= 30-minute tests.
Requirements for stack affected facilities	* C	- COUNT	COM	MACHINE IN PARTY.
Total Method 5 initial stack testing cost	\$	(4	C	M5 test cost if 1 repeat test conducted in 5 years after promulgation
Total Method 9 initial stack testing cost	5		č	Method & stack opacity limit omitted for new
Total Method 5 repeat stack test cost	5	-3.	C 5 yr	
Total Method 9 repeat stack test cost	3		Cay	Method 9 stack opecity limit omitted for new
Periodic visual inspections of BH	\$		A	Frequency of visual inspections (times/yr) =
Periodic 30-minute M22 readings for BHs Total riwide revised testing/mont, cost:	\$		A	Frequency of 30-min M22 (times/yr) =
Capital (\$), YRS 1-5	\$ 9	91,467		
Annualized (annual costs + annualized capital), \$/yr. YRS 1-5		33,116		
Capital (\$), YR 6+		40,800		
Annualized (annual costs + annualized capital), \$/yr, YR 6+		23,153		
fference between baseline & revised NSPS				
Capital (\$), YRS 1-5	\$ (9)	91,467)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests
		49,280		commercial reserve servered and its periods, reserve and supports to At 165001 6000
Annualized (annual costs + annualized capital), Siyr, YRS 1-5 Capital (\$), YR 6+	\$ 64	40,800 23,153		includes 5-yr repeat test costs

N'wide reporting and recordkeeping (R&R) costs:					
Nwide baseline R&R cost					
One-time costs: Read instructionstrule (1 hr per NMPP)	\$	21,660			
Planning/report for initial performance tests (30 hr per NMPP)	5		60.8(a) - report		
Planning/eport for repeat performance tests (30 hr per NMPP, 20% feil r.		129.958	outoful report		
Notification of construction/reconstruction (2 hr per NMPP)	5		50.7(a)(1)		
Notification of actual startup (2 hr per NMPP)	5		60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)	8		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	5	43,319	60.7(a)(4)		
Total one-time costs divided by 5 yrs (Sryr) YR 1-5	5	194,936	SERVE SERVER		
Total one-time costs divided by 5 yrs (S/yr) YR 6+	5				
Annual costs:					
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	5	32,489	60.7(b)		
				Wet scrubbers have no parameter recording frequency. Also, models based on BH or	
Record maniforing data (0 hriaffected facility)	5	0		wet suppression.	
Semiannual wet scrubber monitoring devation reports	\$	manage and a	60.875(d)	Models based on bughouse or wet suppression	
Total of one-time costs per year + annual costs (5/yr) YR 1-5	5	227,426			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$	32,489			
N'wide R&R cost under revised NSPS:					
One-time costs	927	1100210			
Read instructions/rule (1 hr per NMPP)	5	21,660	OR BOOK INCOME.		
Planning/report for initial performance tests (30 hr per NMPP)	\$		60.6(a) - report	Increased fail rate to 25% for revised NSPS since compliance margin is smaller	
Planning/report for repeat performance tests (30 hr per NMPP, 25% fall r.		162,447		Incheses the later to 20% for tayled Non-a since completive margin is entered	
Planning/report for repeat tests after 6+ yrs	\$	649,788 32,489		Used 5% fail rate because few should fail given the ongoing monitoring.	
Planning/report for repeat tests failed after 6+ yrs (5% Juli rele)	\$	32,489	60.7(n)(1)	Omitted from NSPS revision	
Natification of construction/reconstruction (2 hr per NMPP)	\$	49 949	80.7(a)(1)	Office from Nor 3 fevision	
Notification of actual startup (2 hr per NMPP)	5		60.8(d)		
Notification of initial performance test (2 hr per NMPP)			60,8(d)		
Notification of repeat performance test (2 hr per NMPF) after 6+ yrs	5		60.7(a)(4)		
Notification of physical or operational change (2 hr per NMPP)	-	754,032	Acres (MVIA)	Less than baseline because notification of construction/respiration omitted. 5-yr	
Total one-time costs divided by 5 yrs (5/yr) YR 1-5	5	192.770		repeat tests not included	
Total one-time costs divided by 5 yrs (s/yr) YR 6+	5	145,119		includes 5-yr repeat tests	
Annual costs:	~			10745-8 D 8 4.04 D 8 - 10 - 10 - 10 - 10 - 10 - 10 - 10	
Records of startups, shutdowns, mailunctions, etc. (1.5 hr per NMPP)	5	32 489	60.7(5)		
Planning/report for annual M9 tests for ligitive points with carryover/othe			200	16 hy/NMPP with fugitive points to be retested x 1.05 to account for 5% fail rate	
Record monitoring date:	7,570				
Record water flow checks (0.1 hr/water spray/check)	S	259,915			
Record BH visual inspections (0.5 hr/BH/monitoring event)	5				
Record BH M22 readings (0.2 ht/BH/manitaring event)	S				
Semiannual wet scrubber monitoring devation reports	5		60.676(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + ennual costs (\$/yr) YR 1-5	5	485,175			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	5	437,524			
Difference in R&R costs, Siyr YR 1-5	5	257,749			
Diffrerence in R&R costs, 5/yr YR 6+	S	405,035			
Potential emission reduction from increased testing/monitoring on fugitives			-	0.1402 ib/ton x model tph. Used sum of AP-42 uncontrolled PM factors to get 0.1402.	
				80% control assumed for functional system and 20% assumed for malfactioning	
THE STATE OF THE S		26	,	system	
N'wide excess PM from mailunctioning fugitive control, lb/hr		28		system Percent of equipment mailunctioning =	5%
Baseline testing/monitoring:				Assume takes 1 yr to datect problem, although could continue for longer since no	1300
the control of the second section of the second section is belief.		200	n .	testing/monitoring in current NSPS	
Hours of excess emissions before noticed (1 yr x hr/yr)		260			
Total axcess emissions, tpy		.20			
Revised NSPS testing/monitoring:		16	,	Assumes problem would be caught:	monthly
Hours of excess emissions before noticed (frequency x hr/yr)		21.		and the second s	
Total excess emissions, tpy Emission reduction from increased testing/monitoring, tpy		24			
Cost effectiveness of increased testing/monitoring (\$40n), YRS 1-5	5	620		Difference in annualized cost (S/vr) / Emission reduction (tov)	
Cost effectiveness of increased testing/monitoring (aritin), YRS 1-3	1	2 176			

S&G_const

Parameter	Value	Note	Reference	
Typical Plant size (tph)		50	p 6-7 of EPA-450/3-83-001a (April 1983 BID)	
Model Plant No.		1	p. 6-6 of EPA-450/3-83-001s (April 1983 BID)	
Gas flow to baghouses (cfin)	250	00	p: 6-2 of EPA-450/3-63-001a (April 1963 BID)	
Total gas flow	250		However, note that S&G does not typically use BHs. Wet suppression is dominant control	
Model hove	20	99	*	
PM at 0.022 gr/dedf (tpy)	Chicago.	unquantified		
Air Impacts per model:	STATE OF THE PARTY.	i de la companya della companya della companya de la companya della companya dell		
PM at 0.215 gridset (lpy)	III DANKE III	unquantified		
Em. Red. for 0.015 (tpy)	10000	E unquantified		
PM at 0.01 gridsof (tpy)		unquantified .		
Em. Red. for 0.01 (tpy)	COLUMN TO	unquantified		
Nationwide air impacts:		7700000000000		
No. of new models projected	15020050	. beildnaupnu		
Nwide PM at 0.622 gr/decf (tpy)	VIII CO	unquantified		
N/wide PM at 0.015 gr/decf (tpy)		unquantified		
N/wide em. red. for 0.015 (fpy)	表现	unquantified		
N'wide PM at 0.01 grided (tpy)	50 TO 100	unquantified		
N'wide em red, for 0.01 (tpy)		unquantified		
Testing and manifoling costs.			Model 1 includes	
Total number of fugitive effected facilities to be tested:		22	Primary, secondary, and ferriary grushers (assume 6 water sprays here for inlet/outlet of each couster)	
No. with wet suppression sprays.		10	3-4 screening operations (assume 4 water sprays)	
No. with carryover or other fugitive control		12	5-4 screening operations (assume 4 waxer sprays) 5-10 transfer points (assume carryover/endlosure here for 10 all, facilities)	
rec. With carryover or other ruginive control		14	storage bin loading operation (assume carryover for bin and enclosure for loading for 2 aff.	
Total number of stacks to be tested:		0	lacifics)	
N'wide baseline testing/monitoring post:			Test cost x no, new plants x no, affected facilities to be tested	
Total Method 9 initial fugitive testing cost	\$ 9.53	3 6	Includes 1-hour tests only	
Total Method S initial stack testing cost:		C	60 (NOTE 15 TO 16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1 (16) 1	
Total Method 9 initial stack testing cost:	S -	c		
Total rivide baseline testing/mont, oper:				
Capital (\$), YRS 1-5	\$ 9.53	13		
Armusisted (annual costs + annualized capital), 3/yr, YRS 1-5	\$ 2.32	6	CRF at 5 yrs, 7% imprest = 0.244	
Capital (\$), YR 6+	5 -		3	
Annualized (annual costs + annualized capital), \$/yr, YR 6+	5 -			
N'wide testing/manitoring cost under revised NSP5:				
Requirements for fugitive affected facilities	7.47		AREA MANAGEMENT AND THE STATE OF THE STATE O	
Total Method 3 Install fugitive seeling cost	5 4,76		30-minute tests	
Total Method 9 repeat fugitive test cost (for wet supp. only)			Frequency of water checks (times/yr)=	100
Check that water flowing for wet suppression agrays Mathod 9 for carryover or other fugitive control			30-minute tests	12
Requirements for stack affected facilities	\$ 2.00	n can	Just Author Constitution	U
	5	C	M5 test cost if 1 repeat test conducted in 5 years after promulgation	
Total Method 5 initial stack testing cost Total Method 9 initial stack testing cost		C	Method B stack opacity limit omitted for new	
	\$.		Method a stack objectly with criticals for new	
Total Method 5 repeat stack test cost		C 5 yr	Method 9 stack opacity limit omitted for new	
Total Method 9 repeat stack test cost	\$	CSyr		-
Periodic visual inspections of BH	5	A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's	5 .		Frequency of 30-min M22 (times/yr) =	
Total n'wide revised testing/mont, cost				
Capital (\$), YRS 1-5	5 4,76			
Annualized (annual costs + annualized capital), \$/yr. YR9 1-5	\$ 3,04			
Capital (\$), YR 6+ Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$ 2,60 \$ 2,61			
	- TO - CT-10	X		
Difference between beseline & revised NSPS Capital (\$), YRS 1-5	\$ 14,76	25	Difference due to ortified MS for stacks. Does not include 5-yr repeat tests.	
Capital (a), 160 150			Direction does to ornition Mile for allacks. Libes not enclade by repeat tests.	
A new office of concess of marks a many placed manufact #1 series a 1				
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$ 71		to the desired of the second control of the	
Armusiized (armusi costs + armusiized capital), \$/yr, YRS 1-5 Capital (2), YR 6+ Armusiized (armusi costs + armusiized capital), \$/yr, YR 6+	\$ 2,60 \$ 2.51	iù .	includes 5-yr repeat test costs includes 5-yr repeat test costs	

N'wide reporting and recordiseeping (R&R) costs:

N'wide baseline R&R cost.

One-line socie.

Reductions and (1 th per NMPP)
Planning/teach for initial performance tests (30 hr per NMPP) \$
Planning/teach for initial performance tests (30 hr per NMPP, 20% fall is \$
Notification of continus/coinvorcentaturation (2 hr per NMPP) \$
Notification of actual identity (2 hr per NMPP) \$
Notification of initial performance test (2 hr per NMPP) \$
Notification of initial performance test (2 hr per NMPP) \$
Notification of initial performance test (2 hr per NMPP) \$
Total one-line costs discided by \$ yrs (\$4yr) YR 6-5

Annual costs: 104 3,124 60.8(a) - report 625 206 60.7(a)(1) 208 60.7(a)(3) 206 60.8(c) 206 60.7(a)(4) 937 Annual costs: Records of startups, shutdowns, mailfunctions, etc. (1.5 hr per NMPP) 156 60.7(b) Wet sorubbers have no parameter recording frequency. Also, models based on BH or wet - 60.576(d) 1,093 156 Record monitoring data (3 hr/affected facility)
Fermiannual wot sorubber monitoring devation reports
Total of non-time costs per year + annual costs (\$\frac{5}{2}\times) YR 1-5
Total of one-time costs per year + annual costs (\$\frac{5}{2}\times) YR 5+ Neide RSR ook under revised MSPB:

Credier costs.

Credier costs.

Credier costs.

Credier costs.

Credier costs.

Credier costs.

Planningheport for initial performance sents (30 fr per MMPP).

Planningheport for initial performance sents (30 fr per MMPP).

Planningheport for repeat (setts after 6+ yrs.

Notification of construction/reconstruction (2 fr per MMPP).

Notification of initial performance sent (2 fr per MMPP).

Notification of initial performance sent (2 fr per MMPP).

Notification of physical or operational change (2 fr per MMPP). 104
3,124
10 60 8(a) - report
781
55
10 7(a)(1)
208 60.7(a)(3)
208 60.8(d)
208 60.7(a)(4) Increased fall rate to 25% for revised NSPS since compliance margin is smaller Used 5% fail rate because few should fail given the ongoing monitoring. Omitted from NSPS ravision Less than baseline because notification of construction/resonstruction omitted. 5-yr repeat tests not includes 5-yr repeat tests. Total one-time costs divided by 5 yrs (\$N) 1 YR 1-5
Total one-time costs divided by 5 yrs (\$N) 1 YR 1-5
Annual conts.
Records of startups, shuddowns, malfurctions, etc. (1.5 fr per NAPP)
Planningheor for annual Mol sosts for hughine sopints with carryoveriothes
Record monitoring data.
Record where flow chocks (0.1 hir/water spray/chock)
Record BH visical inspections (0.5 hr@lft/monitoring event)
Record BH visical inspections (0.5 hr@lft/monitoring event)
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
Total of one-time costs per year + annual costs (\$N) 1 YR 1-5
Total of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STatis of one-time costs per year + annual costs (\$N) 1 YR 1-5
STATIS OF TOTAL TOTA 927 696 16 hy/NMPP with fugitive points to be retested x 1.05 to account for 5% fail rate 1,250 2,333 2,103 Models based on baghouse or wet suppression Diffrerence in R&R costs, \$/yr YR 1-5 Diffrerence in R&R costs, \$/yr YR 6+ Potential emission reduction from increased testing/monitoring on lugitives 0.1402 libition x model tiph. Used sum of AP-42 uncontrolled PM factors to get 0.1402. 80% control assumed for functional system and 20% assumed for mathetistring system. Percent of equipment mathetistrings — factors to explain the factor of the problem, although could continue for longer since no testing/monitoring in current NSPS. N'wide excess PM from maillunctioning fugitive control, but in Baseline testing in onitioning. Hours of excess emissions before noticed (1 yr x hrlyr)
Total excess emissions, tpy
Reviseo NPSP (esting/increasions)
Hours of excess emissions before noticed (frequency x hrlyr)
Total excess emissions, tpy
Emission reduction from increased feating/increasing, tpy
Cost effectiveness of increased resting/increasing (\$Ann), YRS 1-5
Cost effectiveness of increased testing/increasing (\$Ann), YR 6-1-5 2000 Assumes problem would be caught:

Difference in annualized cost (\$/yr) / Emission reduction (tpy)

Parameter		Value	Note	Reference		
Typical Plant size (tph):		25		p. 8-7 of EPA-450/3-83-001a (April 1983 BID)	_	
Model Plant No.		2		p. 6-6 of EPA-450/3-83-001a (April 1983 BID)		
Gas flow to baghouses (cfm):		11500		p. 5-2 of EPA-450/3-B3-001a (April 1983 BID)		
CATEGORIS (ALTERNATIVE SHIP)		4700				
Total gas flow		16200				
Model hr/yr		8400				
PM at 0.022 gr/dsof (tpy)		12.8				
All the state of t		18.0				
Air impaots per model:						
PM at 0.014 gr/dscf (tpy)		8.2				
Em. Red. for 0.014 (tpy)		4.7				
PM at 0.01 go/dacf (tpy)		5.6				
Em. Red. for 0.01 (ipy)		7.0				
ACCOUNTS AND A MARKAGANA						
Nationwide air impacts No. of new models projected		1				
Nwide PM at 0.022 gr/dscf (try)		13				
ta wide I aw W 0.0755 display (mA)		13				
N'wide PM at 0.014 gr/dsel (tpv)		8				
N'wide em. red. for 0.014 (tpy)		5				
N/wide PM at 0.01 gridacf (tpy)		6				
N'wide em. red. for 0.01 (tpy)		7 -				
			113			
Nwide testing and monitoring costs:						
Total number of fugitive affected facilities to be tested:		0				
No. with wet suppression sprays		0				
No, with carryover or other fugitive control		0				
Total number of stacks to be lealed:		9		Based on breakout of affected facility ofm (pp.4-1 to 4-7 of EPA-450/3-82-014)		
Nwide baseline testing/monitoring cost:				Test cost a no, new plants a no, affected facilities to be tested		
Total Method 9 initial flugitive testing gost		0	C	This cast it do, that printed a fig. attended installed to see under		
Total Method 5 initial stack testing cost	\$	63,000	C			
Total Method 9 initial stack testing cost	\$	11,700	C			
Total n'wide baseline testing/mont, post:						
Capital (5), YRS 1-5	\$	74.700				
Annualized (annual costs + annualized capital), \$/yr, YRS 1-E	\$	18,227		CRF at 5 yrs, 7% interest = 0.244		
Capital (5), YR 6+	\$	•				
Annualized (annual costs + annualized capital), \$/yr, YR 64	\$					
N'wide testing/manitoring cost under revised NSPS.						
Requirements for fugitive affected facilities						
Total Method 9 initial fugitive testing cost		C C	C			
Total Method 9 repeat fugitive test cost (for wet supp. only)		0	C 5 yr	HEATTHCOME AND PROCEEDING SERVICES IN THE PROCESS OF THE PROCESS O		144211
Check that water flowing for wet suppression sprays		0	A	Frequency of water checks [times/yr]=		12
Method 9 for carryover or other fugitive control Requirements for stack affected facilities		0	A	Frequency of M9 monitoring (times/yr) =		C
Total Method 5 initial stack testing cost	5	63,000	C			
Total Method 9 initial stack testing cost	3	00,000	c	Method 9 stack opacity limit omitted for new		
Total Method 5 repeat stack test cost	\$		C 5 yr	A STATE OF THE STA		
Total Method 9 repeat stack test cost	9		C 5 yr	Method 9 stack opacity limit omitted for new		
Periodic visual inspections of BH	\$		A	Frequency of visual inspections (times/yr) =		0
Periodic 30-minute M22 readings for BH's		3,385	A	Frequency of 30-min M22 (times/yr) =		4
Total n'wide revised testing/mont. cost:						
Capital (5), YRS 1-5	5	63,000				
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$	18,757				
Cepital (S), YR 6+ Annualized (annual costs + annualized capital), \$/yr, YR 6+	3	3.385				
	3.7	2,303				
Difference between baseline & revised NSPS		1700 2000				
Capital (\$), YRS 1-5	\$	(11,700)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.		
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$	531		CATALOGUE DE CATALOGUE DE PROCESSA MARCONA PROCESSA E		
Capital (\$), YR 6+	\$	1070		includes 5-yr repeat test costs		
Annualized (annual costs + annualized capital), 3/yr, YR 6+		3,385		includes 5-yr repeat test costs		

				Data show that 0.04 gr/dscf can be expected from malfunctioning BH (e.g., torn	
Excess PM from melfunctioning BHs (0.04 - 0.014), gridscf		0.026		bags) Based on total model flow to BHs x no, of plants. Percent of equipment	
Excess PM from melfunctioning BH, lb/hr (x no. of plants) assiste testino/monitoring:		0.2		melfunctioning =	5%
**************************************				Assume takes 1 yr to detect problem, although could continue for longer since no	
Hours of excess emissions before noticed (1 yr x hr/yr)		8400		testing/monitoring in current NSPS	
Fotal excess emissions, tpy		0.8			
evised NSPS testing/manitoring; Hours of excess emissions before noticed (frequency x hr/yr)		2100		Assumes problem would be caught:	quarterly
Total excess emissions, tpy		0.2		The state of the s	4
mission reduction from increased testing/monitoring, tpy		0.6			
ost effectiveness of increased testing/monitoring (\$/ton), YRS 1-5	\$	933		Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
ost effectiveness of increased testing/monitoring (\$/ton), YR 6+	\$	5,954			
Wide reporting and recordkeeping (R&R) costs:				5.9	
/wide baseline R&R cost:					
Read instructions/rule (1 hr per NMPP)		104			
Planning/report for initial performance tests (30 ftr per NMPP)	5		60.8(a) - report		
Planning/report for repest performance tests (30 hr per NMPP, 20% tail rate)	\$	626			
Notification of construction/reconstruction (2 hr per NMPP)	\$		60.7(a)(1)		
Notification of actual startup (2 hr per NMPP)	\$		60.7(a)(3)		
Notification of initial performance test. (2 hr per NMPP)	\$		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	8		60.7(a)(4)		
Total one-time costs divided by 5 ym (\$/yr) YR 1-5	\$	937			
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	3	*			
nnual costs:	3	150	60.7(b)		
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	3	100	00.1(0)	Wet scrubbers have no parameter recording frequency. Also, models based on Bi	н
Record monitoring data (0 hr/affected facility)	S			or wet suppression.	
Semiannual wet scrubber monitoring devation reports	3		60.676(d)	Models based on baghouse or wet suppression	
otal of one-time costs per year + annual costs (\$/yr) YR 1-5	3	1,093			
dal of one-time coals per year + annual costs (S/yr) YR 5+	8	156			
/wide R&R cost under revised NSPS:					
Read instructions/rule (1 hr per NMPP)	5	104			
Planning/report for initial performance tests (30 hr per NMPP)	s		60.6(a) - report		
Planning/report for repeat performance tests (30 hr per NMPP, 25% fail rate)	S	781		Increased fall rate to 25% for revised NSPS since compliance margin is smaller	
Pfanning/report for repeat lests after 6+ yrs	5	4	9		
Planning/report for repeat tests failed after 6+ yrs (5% fail rate,	\$			Used 5% fall rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)	\$		60.7(a)(1)	Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP)	5	208			
Notification of initial performance test. (2 hr per NMPP)	s		60.8(d)		
Notification of repeat performance test (2 hr per NMPP) after 6+ yrs	5	nen	60.8(d) 60.7(a)(4)		
Notification of physical or operational change (2 hr per NMPP)	-5	208	_60.7(B)(4)	Less than baseline because notification of construction/resonstruction omitted. 5-	yr:
Total one-time costs divided by 5 y/s (\$/yr) YR 1-5	\$	927		repeat tests not included	
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	\$			Includes 5-yr repeat tests	
Annual costa:	5511	9838	0200000		
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	\$	156	60,7(b)	and a series of the first of the series of the series of the first terms of the EAV feet and	
Planning/report for annual M9 tests for fugitive points with carryover/other	8			16 hr/NMPP with fugitive points to be retested x 1.05 to account for 5% fall rate	
Record monitoring data: Record water flow checks (0.1 hr/water spray/check)	\$				
Record BH visual inspections (0.5 hr/BH/monitoring event)	8				
Record BH M22 readings (0.2 hr/BH/monitoring event)	5	750			
Semiannual wet scrubber monitoring devation reports	5	100	60.676(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + annual costs (5/yr) YR 1-5	8	1,833			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$	906			
Diffrerence in R&R costs, \$/yr YR 1-5	\$	739			
Offrerence in R&R costs, \$/yr YR 6+	\$	750			

Typical Plant size (tph): Model Plant No. Gas flow to baghouses (cfm):		25 2 11500		p. 6-7 of EPA-450/3-63-001s (April 1983 BID) p. 6-6 of EPA-450/3-63-001s (April 1983 BID)	
Gas flow to baghouses (cfm):		11500			
				p. 6-2 of EPA-450/3-63-001u (April 1983 BID)	
		4700			
Total gas flow		16200			
4420 1000		12.022			
Model hrtyr		8400		W	
PM at 0.022 gr/dscf (tpy)		12.8			
Air Impacts per model:					
PM at 0.014 grideof (tov)		8.2			
Em. Red. for 0.014 (tpy)		4.7			
SHIT FORD ISS OLD IN (DD))		7.1			
PM at 0.01 gridect (tpy)		5.8			
Em. Red. for 9:01 (tpy)		7.0			
		14.64			
Nationwide air impacts.					
No, of new models projected		4			
N'wide PM at 0.022 gridsof (tpy)		51			
				T.	
N'wide PM at 0.014 gr/ducf (tpy)		33			
Nwide em. red. for 0:014 (tpy)		19			
Winde PM at 0.01 gr/dsof (tpy)		23			
Nwide em. red. for 0.01 (tpy)		28			
MY100 W 100 W 10 =0					
Nwide testing and monitoring costs:		-			
Total number of fugitive affected facilities to be tested:		0			
No. with wet suppression sprays		0			
No. with carryover or other fugilive control		0			
Total number of stacks to be tested:		9.		Based on breakout of affected facility ofm (pp. 4-1 to 4-7 of EPA-45D/3-82-014)	
OURS FRUITIDES OF EDICAS IC DE LEBIOC.		9		depend on organisation and seems of the fibre-1 to 4-1 or Charles 25-65-514	
Wwide baseline testing/monitoring cost:				Test-cost x no: new plants x no: affected facilities to be tested	
Foral Method 9 Initial fugitive testing cost		0	C	Tool took x his How plants a not distance location to be tooled	
Fotal Method 5 Initial stack testing cost	5	252,000	c		
Fotal Method 9 Initial stack testing cost	5	46,800	c		
Total n'wide baseline teating/mont, cost:	-	100			
Capital (\$), YRS 1-5	8	298,800			
Annualized (annual costs + annualized capital), \$4rr, YRS 1-5	8	72.907		CRF at 5 yrs, 7% interest = 0.244	
Capital (\$), YR 6+	8	1000000		WEARING AND ACTUAL STATE OF THE	
Annualized (ennual costs + annualized capital), \$/yr, YR 6+	\$	-			
Wwide testing/monitoring cost under revised NSPS:					
Requirements for fugitive affected facilities					
Total Method 9 initial fugitive testing cost		D	C		
Total Method 9 repeat fugitive test cost (for wet supp. only)		D	C 5 yr		
Check that water flowing for wet suppression sprays		0	A	Frequency of water checks (times/yr)=	12
Method 9 for carryover or other fugitive control		D	A	Frequency of M9 monitoring (timesryr) =	0
Requirements for stack affected facilities					
Total Method 5 initial stack testing cost	8	252,000	C		
Total Mothod 9 initial stack testing cost	. 5	*	C	Method 9 stack opacity limit omitted for new	
Total Method 5 repeat stack test cost	S		C 5 yr		
Total Method 9 repeat stack test cost	8	-	Chyr	Method 9 stack opacity limit omitted for new	
Periodic visual inspections of BH	\$	198	A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's	8	13,541	A	Frequency of 30-min M22 (times/yr) =	- 4
Total n'wide revised testing/mont, cost:					
Capital (\$), YRS 1-5	5	252,000		Na contract of the contract of	
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$	75,029			
Capital (\$), YR 6+	\$	***			
Annualized [ennual costs + annualized capital), 5/yr, YR 6+	5	13,541			
CARLOS CONTRACTOR OF THE PARTY.					
Ofference between baseline & revised NSPS		ten oomi			
Capital (\$), YRS 1-5 Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$ \$	(46,800)		Difference due to profited M9 for stacks. Does not include 5-yr repeat tests.	
		2,122			
				feetedan E un second toot opeta	
Capital (\$), YR 6+ Annualized (annual costs + annualized capital), S/yr, YR 6+	8	13.541		includes 5-yr repeat test costs includes 5-yr repeat test costs	

Potential emission reduction from increased testing/monitoring on BH's		DENIESSA:		Unable to quentify benefits for wet suppression. Data show that 0.04 gridsof can be expected from maifunctioning BH (e.g., torn	
Excess PM from malfunctioning BHs (0.84 - 0.014), gr/dscf		0.026		begs) Based on total model flow to BHs x no. of plants. Percent of equipment	
Excess PM from malfunctioning BH, lb/hr (x no. of plants)		0.7		maifunctioning =	
Baseline testing/monitoring:				Assume takes 1 yr to detect problem, although could continue for longer since no	
Hours of excess emissions before noticed (1 yr x hr/yr)		8400		testing/monitoring in current NSPS	
Total excess emissions before induced (1 yr x nbyr)		3.0		testing mountaining in our on the to	
Revised NSPS testing/monitoring:					
Hours of excess emissions before noticed (frequency x hr/yr)		2100		Assumes problem would be caught:	Qua
Total excess emissions, tpy		0.8			
mission reduction from increased testing/monitoring, tpy		933		Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$7on), YRS 1-5 Cost effectiveness of increased testing/monitoring (\$7on), YR 6+	5	5.954		Ofference in annual sold cost (aryr)/ Emission regovator (by)	
cost effectiveness of increased tesang/monitoring (aron), 11 or	•	0,704			
Nwide reporting and recordkeeping (R&R) costs:					
Nwide baseline R&R cost:					
One-lime costs:	s	417			
Read instructions/rule (1 hr per NMPP) Planning/report for initial performance tests (30 hr per NMPP)			60.8(a) - report		
Planning/report for repeal performance tests (30 hr per NMPP, 20% fall)		2,499	ou olaj roport		
Notification of construction/reconstruction (2 hr per NMPP)	5		60.7(a)(1)		
Notification of actual startup (2 hr per NMPP)	8		60.7(a)(3)		
Notification of initial performance test. (2 hr per NMPP)	5		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	\$	3,749	60.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	5	3,749			
Total one-lime costs divided by 5 yrs (\$/yr) YR 6+ Annual costs:	*				
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	5	625	60.7(b)		
	:7%			Wet scrubbers have no parameter recording frequency. Also, models based on	
Record monitoring data (0 hriaffected facility)	8	*		BH or wet suppression.	
Semiannual wet scrubber monitoring devation reports	8	-	60.676(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5		4,374			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$	625			
Nwide R&R cost under revised NSPS:					
One-time costs		+			
Read instructions/rule (1 hr per NMPP)	\$	417			
Planning/report for initial performance tests (30 hr per NMPP)	5 1	2,496	60.5(a) - report		
Planning/report for repeat performance tests (30 hr per NMPP, 25% fall i	5	3.124		Increased fall rate to 25% for revised NSPS since compliance margin is smaller	
Plenning/report for repeat tests after 6+ yrs	5			A SAN PRINCE DE LA COMPANION D	
Planning/report for repeat tests felled after 5+ yrs (5% fell rate)	5			Used 5% fall rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)	8		60.7(a)(1)	Omitted from NSP8 revision	
Notification of actual startup (2 hr per NMPP)	5		60;7(a)(3) 60;8(d)		
Notification of initial performance test. (2 hr per NMPP) Notification of repeat performance test (2 hr per NMPP) after 5+ yrs	-	033	60,8(d)		
Notification of physical or operational change (2 hr per NMPP)		833	60.7(a)(4)		
Hamilton a prijestova sprimara i prijestova sprimara i prijestova sprimara i prijestova sprimara i prijestova s	10.			Less than baseline because notification of construction/resonstruction omitted. 5-	
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5		3,707		yr repeat tests not included	
Total one-time costs divided by 5 yrs (5/yr) YR 6+	\$			Includes 5-yr repeat lests	
Annual costs: Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	s	525	60.7(b)		
Records of startups, shutdowns, masusictions, etc. (1.5 in per Nair-F)	•	94.5	do.r(a)		
Planning/report for annual M9 tests for fugitive points with carryover/othe	. 8			16 hr/NMPP with fugitive points to be retested x 1.05 to account for 5% fall rate	
Record monitoring data:	162				
Record water flow checks (0.1 hr/water spray/check)	3	*			
Record BH visual inspections (0.5 hr/BH/monitoring event)	5	2.999			
Record BH M22 readings (0.2 hr/BH/monitoring event) Semiannual wat scrubber monitoring devation reports	5	2,999	60.678(d)	Models based on baghouse or wet suppression	
	3	7.331	A CONTRACTOR OF THE PARTY OF TH	Southern the composition of the control of the cont	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5 Total of one-time costs per year + annual costs (\$/yr) YR 6+	5	3,624			
room or ever-room empre has hour a morning example feeling our	1000				
Diffrerence in R&R costs, \$/yr YR 1-5	5	2,957			
Diffrerence in R&R costs, \$/yr YR 6+					

69

Parameter	Value	Note	Reference	
Typical Plant size (tph):	110174111	25	p. 6-7 of EPA-450/3-83-001a (April 1983 B/D)	
Model Plant No.		2	p. 6-6 of EPA-450/3-83-001m (April 1983 BID)	
Gas flow to baghouses (cfm).	116	COD	p. 5-2 of EPA-450/3-83-001a (April 1983 BID)	
	47	00		11
Total gas flow	162	100		
Model hrigh	84	dD .		
PM at D 022 gr/deaf (toy)		2.6		
Little at a some Monday California	-	6,00		
Air Impacts per model:		_		
PM at 0.014 gr/decf (tpy)		5.2		
Em. Red. for 0.014 (tpy)	10	4.7		
PM at 0.01 gr/decf (tpv)	6	5.8		
Em. Red. for 0.01 (tpy)		7.0		
Entrada tar our (py)				
Nationwide air impacts:				
No. of new models projected		1		
N'wide PM at 0.022 gi/dscf (tpy)		13		
Nwide PM at 0.014 gridsof (tpy)		8		
Nwide em. red. for 0.014 (tpy)		5		
14 map one rod to pro 14 (bb)				
N'wide PM at 0.01 gr/dsof (tpy)		6		
N'wide am. red. for 0.01 (toy)		7		
AL DOMESTIC MATERIAL PARCE CANADA				
N wide testing and monitoring costs: Total number of fugitive affected facilities to be tested.		D		
No, with wet suppression sprays		0		
No. with carryover or other fugitive control		0		
		170		
Total number of stacks to be tested:		D .	Based on breakout of affected facility ofm (pp.4-1 to 4-7 of EPA-450/3-82-014)	
N'wide baseline testing/monitoring cost:			Test cost x no, new plants x no. affected facilities to be tested	
Total Method 9 initial fugilive testing cost		0 C	LOUGHEST AND	
Total Method 5 initial stack testing gost	\$ 63,00			
Total Method 9 initial stack testing cost	\$ 11,70			
Total n'wide baseline testing/mont, cost				
Capital (\$), YRS 1-5	\$ 74,70			
Annualized (ennual costs + annualized capital), \$/yr, YRS 1-5	\$ 18,22	27	CRF at 5 yrs, 7% interest = 0.244	
Capital (\$), YR 6+	\$.			
Annualized (annual costs + annualized capital), \$/yr, YR 5+	5 -			
N/wide testing/monitoring cost under revised NSPS				
Requirements for fugitive affected facilities.				
Total Method 9 initial fugitive testing cost		0 C		
Total Method 9 repeat fugitive test cost (for wet supp. only)		0 C5yr		
Check that water flowing for wet suppression sprays	41	0 A	Frequency of water checks (times/yr)=	12
Method 9 for carryover or other fugitive control		D A	Frequency of M9 manitoring (times/yr) =	0
Requirements for stack affected facilities		7.50		
Total Method 5 initial stack testing cost	\$ 63,00			
Total Method 9 initial stack testing cost	\$.	C	Method 9 stack opacity limit omitted for new	
Total Method 5 repeat stack test cost	5 ,	C5 yr		
Total Method 9 repect stack test cost Periodic visual inspections of BH	\$ -	C 5 yr	Method 9 stack opacity limit omitted for new	
	5 336	5 A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's Total n'wide revised testing/mont, cost:	\$ 3,38	<u> </u>	Frequency of 30-min M22 (Times/yr) =	9.
Capital (\$), YRS 1-5	\$ 63,00	w	30	
Annualized (annual costs + annualized capital), \$/vr, YRS 1-5	\$ 18,75			
Capital (3), YR 6+	3	55.1		
Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$ 3,38	15	18.	
			1	
Difference between baseline & revised NSPS	- L	and the second		
Capital (\$), VRS 1-5	\$ (11.70		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.	
Annusized (annual costs + annualized capital), \$/yr, YRS 1-E	\$ 60	17	F2018/2 # 22 32 34	
Capital (\$), YR 6+	\$ -		includes 5-yr repeat test costs	
Annualized (annual costs + annualized capital), \$Ayr. YR 64	\$ 3.35		includes 5-yr repeat test costs	

		092	5 See See Coate, 5 W. P. F. See Coate, 5 W. P. P. See See See Coate, 5 W. P. P. See See See See See See See See See Se
		GEY.	2 A. I. St. with others Hard of second St.
X is a second of the second of		906	Cotal of one-time costs per year + annual costs (\$/yr) YR 6+
	16.11	EE8.1	
Models broad on beginning a suppression	(b)878.08		\$ amorem reported and acrubber monitoring develor reports
		097	Record BH M22 residues (0.2 h/HH/monitoring event)
			Pecord BH Virual inspections (0.5 httBH/monitoring availy HB broose)
		3.5	Record monitoring data: Record water flow checks (0.1 hrivater spray/check.)
The second of th		55	Planning/report for ennual M9 tests for fugilive points with certybrer/oths \$
alan list 473 not invocce of 30.1 x betseler ed of sining eviliguit rilliw 99MM:nri &r	(d)Y.D8	901	Records of startups, shutdowns, malfundoins, etc. (1.5 ht per NMPP) \$
	1402.00	.007	nnual costa:
Includes 5-yr repeat track			Total one-time costs divided by 5 yrs (\$(yr) YR 6+
bebulari ton		126	Total one-time costs divided by 6 yrs (\$4)17 YP 1-6
Less tran baseline because nothication of construction/resonstruction onlined. 5-yr, repent tests			
	(4)(n)7.08	208	Notification of physical or operational change (2 hr per MMPP) \$
	(b)8.0a		Notification of repeat performence test (2 hr per MMPP) after 6+ yrs. 5
	(b)8.08		Notification of initial performance lest (2 in per NMPP) 5
	(E)(B)7.03	805	Notification of actual startup (2 hr per NMPP) 5
noisiver SPSV most ballimO	(1)(n)√.00	15/	Remaining the repeat tests falled effet 6+ yrs (5% fall rate, 8 to Notification of construction/construction (2 tr per VM) and 14 to 15 to
grinosinom gnicogno enti nevigitat bluode wel seusced statistical 2% boxU.			2 cry +8 with steel leader of troquigainnel9.
increased fail rate to 25% for revised NSPS since compliance margin is sittailer		181	Planning/mport for repeat performence tests (30 hr per MMPP, 25% full \$
solicities of climates econolimmes and a 20216 bashoon set 3620 of also fed bases and	Itoqen - (#)8.08		Pianning/report for initial performance tests (30 ivr per NMPP) \$
	\$1000 TOB WE	104	Read instructionshale (1 ftr per MMPP) 5
			un-lime costs
			292M bealver rebnu Jeco A&R stiw
		991	Seal of one-time coats per year + annual coats (S/yr) VR. 5+
		1,093	2 6-1 AY (192) atoo learne + new reg also emit-eno la lado
	(b)878.08	600 4	Seminarial wet scrubber monitoring devaiton reports
auppression. Models besed on beghouse or wet suppression.	th/ata na		Record monitoring date (0 twisflected facility) 5
Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet			THE STATE OF THE PROPERTY OF T
	(4)7.08	951	nural coets: Records of startups, shutdowns, mailunctions, etc. (1,5 hr per NMPP) \$
		*	Total one-time costs divided by 5 yrs (\$/yr) PR 6+
		486	2 3-1 AY (1y/8) ery 5 yd bebiyds steop emit-eno tebo T
	(#Xs)7.08		Notification of physical or operational change (2 hr per NMPP) 5
	(b)8.08		Notification of initial performance test (2 hr per MMPP) 5
	(E)(a)7,08		2 (99M/ 1991 Nr S) quitate tautous To notification/
	(F)(a)\\ 00		Notification of construction/reconstruction (2 hr per NMPP) 5
	under dele co	979	2 (99MM teg tif 06) elect constructing liabin tot proget/prinnel9 2 field 4005, 99MM teg tif 06) abest constructed based not broad-prinnel9
	hoger - (a)8 08	3,124	Read leakuctionships (1 in per MMP) 2 (99MM per ni (30 in per MMPP) 2 (99MM per ni (30 in per mannaha)
		PUI	2 (OCAMA - or all to ded control - ex
			wide baseline R&R cost:
			rateos (ASA) gniges/broom brus gnitrogen ebiw
		1969	\$ 19 MY (nat/2) grinothoning feet besieved to seenest-virtually list
Officence in annualized cost (\$/y1) / Emission reduction (tpy)		933	2 8-1 2RY ,(no.N2) gninosinomignitaet beareanni to asenaviacitis suo
find with our retained to 144 to be beginning of any order		90	(c) ganotinomigniset bessenon mort notouber noiselin
		2.0	otal excess emissions, tpy
Vaanusea bropiem word per centity: dine		5100	fours of expess emissions before noticed (frequency x httyr)
			gnhofnom/gndsat S92N bealve
PRODUM HAS BY U.S. OF BEHAVIOR OF THE BEHAVIOR		8.0	otul excess emissions, tpy
Assume takes 1 yr to defect problem, although could continue for longer since no tysting/monitoring in current NSPS		0048	fours of expess emissions before noticed (1 yr x hrlyr)
			segue pasquotypoug:
Based on total model flow to BHs x no, of plants. Percent of equipment malkendaning :		0.2	Excess PM from mattunctioning BH, th/hr (x no. of plants)
		0,026	s'H3 m grantom'gardiser beseavan' matoobbe selentation desired Excese PM from melhurdioning 8He (0 PG + 0 016), gridsert exesse PM from melhurdioning 8He (new or cleants)

Parameter	Value	Note	Reference	
Typical Plant size (tph)	25	2000000	p. 6-7 of EPA-450/3-83-001s (April 1983 BID)	
Model Plant No.	2		p. 8-6 of EPA-450/3-83-001a (April 1983 BIO)	
Gas flow to baghouses (cfm):	11500		p. 6-2 of EPA-450/3-83-001 a (April 1983 BIO)	
	4700			
Total gas flow	18200			
Model hr/yr	8400			
Middel https:// PMidt 0.022 grsof (tpy)	12,8			
Fire at 0.022 goesar (dpy)	12,0			
Air Impacts per model;				
PM at 0.014 gr/dsof (tpy)	8.2			
Em. Red. for 0.014 (tpy)	4.7			
PM at 0.01 gridset (tpy)	5.8			
Em Red for 0.01 (tpy)	7.0			
Nationwide air impacts:				
No. of new models projected	7		1	
N'wide PM at 0.022 gr/dsof (tpy)	90			
3777				
N'wide PM at 0.014 gr\u00e4scf (tpy)	57			
N'wide em. red. for 0.014 (tpy)	33			
N'wide PM at 0.01 gr/dscf (tpy)	41			
N'wide am. red. for 6.01 (tpy)	49			
N'wide testing and monitoring costs:				
Total number of fugitive affected facilities to be tested:	n			
No with well suppression aprays	0			
No. with carryover or other fugitive control.	0			
Total number of stacks to be tested:	9		Based on breakout of affected facility cfm (pp.4-1 to 4-7 of EPA-45	M3-82-014)
N'wide baseline testing/monitoring cost:			Test cost x no. new plants x no. affected facilities to be tested	
Total Method 9 Initial fugiliye testing cost	0	C	Film sector has their printer a has introduced insurates in the replied	
Total Method 5 initial stack testing cost	\$ 441,000	C		
Total Method 9 initial stack testing cost	\$ 81,900	C		
Total n'wide besnihe testing/mont. cost:	-,			
Capital (\$), YRS 1-6	5 522,900		C200-15-1-20-14-14-14-1-20-16	
Annualized (annual costs + annualized capital), \$/yr, YRS 1-E	5 127,588		CRF at 5 yrs, 7% interest = 0.244	
Copital (\$), YR 6+ Annualized (annual costs + annualized capital): \$/yr, YR 54	S -			
Annualized (annual costs + annualized dapital); 3/yr, YN 54	3 "			
N'wide testing/monitoring cost under revised NSPS:				
Requirements for fugilive affected facilities				
Total Method 9 initial fugitive testing cost	0	C		
Total Method 9 repeat fugitive test cost (for wet supp. only)	0	C.5 yr		
Check that water flowing for wet suppression sprays	D	A	Frequency of water checks (times/yr)=	113
Method 9 for carryover or other fugitive control	D	A	Frequency of M9 monitoring (times/yr) =	4
Requirements for stack affected facilities				
Total Method 5 initial stack testing cost Total Method 9 initial stack testing cost	\$ 441,000	C	Method 9 stack opacity limit omitted for new	
Total Method 5 repeat stack test cost	\$ 5	Cayr	wantoo B statick opacity after orthano air new	
Total Method 9 repeat stack test cost	\$	C.5 yr	Method 9 stack opacity limit omitted for new	
Periodic visual inspections of 8H	\$ +	A	Frequency of visual inspections (times/yr) =	3
Periodic 30-minute M22 readings for BH's	5 23,698	A	Frequency of 30-min M22 (times/yr) =	7
Total n'wide revised testing/mont, cost.			THE PROPERTY OF THE PROPERTY OF THE PARTY OF	
Capital (\$), YRS 1-5	\$ 441,000			
Annualized (annual costs + annualized capital), 5/yr, YRS 1-5	\$ 131,302			
Capital (\$), YR 6+	5 +			
Annualized (annual costs + annualized capital), Styr. YR 6+	\$ 23,695			
Difference between baseline & revised NSPS				
Capital (\$), YRS 1-6	\$ (81,900)		Difference due to amitted MB for stacks. Does not include 5-yr rep-	ant tests
Annualized (annual costs + annualized capital), 3/yr, YRS 1-5	\$ 3,714		7 100	
Capital (\$), YR 5+ Annealted (annual costs + annualized capital), \$/yr, YR 6+	\$ - \$ 23,695		includes 5-yr repeat test costs includes 5-yr repeat test costs	

Potential emission reduction from Increased teating/monitoring on BH's Excess PM from malfunctioning BHs (0.04 - 0.014), grided Excess PM from malfunctioning BH, lb/hr (x no. of plants)	0.0	26	Unable to quantify benefits for wet suppression. Date show that 0.04 gridscif can be expected from malfunctioning BH (e.g., form begs) Based on total model flow to BHs x no. of plants. Percent of equipment malfunctioning =	5%
Baseline testing/monitoring.		1090	Assume takes 1 yr to detect problem, although could continue for longer since no testing/monitoring in	
Hours of excess emissions before noticed (1 yr x hr/yr)	84	00	current NSPS	
Total excess emissions, tpy		5.3	2572470732550	
Revised NSPS testing/monitoring:				
Hours of excess emissions before noticed (frequency x hr/yr)	21	00	Assumes problem would be caught:	quarterly
Total excess emissions, tpy		1.3		
Emission reduction from increased testing/monitoring, by		4.0		
Cost effectiveness of Increased testing/monitoring (\$/ton), YRS 1-5		33	Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$/tan), YR 5+	\$ 5,9	54		
Nwide reporting and recordiosping (R&R) costs:				
N'wide baseline R&R cost:				
One-time costs:		29		
Read instructionstrate (1 fir per NMPP)		58 60.8(a) - report		
Planning/report for initial performance tests (30 hr per NMPP) Planning/report for repeat performance tests (30 hr per NMPP, 20% fall	5 4.3			
Notification of construction/reconstruction (2 hr per NMPP)		58 50.7(a)(1)		
Notification of actual startup (2 hr per NMPP)		58 50.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)		58 60.8(d)		
Notification of physical or operational change (2 hr per NMPP)		58 50.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$ 6,5			
Total one-time costs divided by 5 yrs (\$/yr) YR 6◆	\$.			
Annual costs:				
Records of startups, shutdowns, mulfunctions, etc. (1.5 hr per NMPP)	\$ 1,0	93 60.7(b)		
Record monitoring data (0 hrisflected feolity)	\$.	S SECURE ENGINEER	Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet suppression.	20
Semiannual wet scrubber monitoring devation reports	5 -	60.676(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 7,6		and the second s	
Total of ane-time costs per year + annual costs (\$/yr) YR 6+	\$ 1,0	93		
N'wide R&R cost under revised NSPS				
One-time costs	2 3	940		
Read instructions/rule (1 hr per NMPP)		29 68 60.8(a) - report	¥7	
Planning/report for initial performance tests (30 hr per NMPP) Planning/report for repeat performance tests (30 hr per NMPP, 26% fall			Increased fail rate to 25% for revised NSPS since compliance margin is smaller.	
Planning/report for repeat tests after 6+ yrs	2 00	U/	10/22/03 201 102 10 201 10 10 10 10 10 10 10 10 10 10 10 10 1	
Planning/report for repeat lests falled after 6+ yrs 15% fail rate.			Used 5% fall rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)	\$	60.7(a)(1)	Omittad from NSPS revision	
Notification of actual startup (2 hr per NMPP)	\$ 14	58 60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)		58 60.8(d)		
Notification of repeat performance test (2 hr per NMPP) after 6+ ye		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	\$ 1,4	58 80.7(a)(4)		
A MANAGEMENT DESCRIPTION OF THE STREET OF TH		Description of the second	Less than baseline because notification of construction/resonstruction omitted. 5-yr repeat tests not	
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$ 6.4	87	included	
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	\$		Includes 5-yr repeat tests	
Annual costs:				
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)		93 60.7(b)	16 hr/NMPP with fugitive points to be retested x 1.05 to account for 5% fall rate	
Planning/report for annual M9 tests for fugitive points with carryover/off	¥ \$		15 https://pww.hugitive.points.to.doe.retested.x.1.ud.to.account.tor.575 issi rate.	
Record monitoring data:	-			
Record water flow checks (0.1 hr/water spray/check)	5	Š		
Record BH visual inspections (0.5 hr/BH/monitoring event)	\$ 5.2	49		
		60.676(d)	Models based on baghouse or wet suppression.	
Record BH M22 readings (0.2 hr/BH/monitoring event)				
Semiannual wet scrubber monitoring devation reports				
	\$ 12,8 \$ 6,3	29		5.00
Semiannual wet scrubber monitoring devation reports Total of one-time costs per year + annual costs (\$/yr) YR 1-5 Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$ 12,8 \$ 6,3	129 142		300
Semiannual wet scrubber monitoring devetion reports Total of one-time costs per year + annual costs (\$iyr) YR 1-5	\$ 12,8 \$ 6,3 \$ 5,1	29		596

Parameter	(1)	Value	Note	Reference	
Typical Plant size (tph):		25		p. 6-7 of EPA-450/3-83-001a (April 1983 BID)	
Model Plant No.		2		p. 6-6 of EPA-450/3-83-001a (April 1983 BID)	
Gas flow to baghouses (cfm):		11500		p. 6-2 of EPA-450/3-83-001a (April 1983 BID)	
		4700			
Total gas flow		18200			
AND DESCRIPTION OF THE PROPERTY OF THE PROPERT					
Model hr/yr		B400			
PM at 0.022 gr/dsof (tpy)		12.8			
Air Impacts per model:					
PM at 0.014 gr/dscf (tpy)		8.2			
Em. Red. for 0.014 (tpy)		4.7			
PM at 0.01 gr/decf (tpy)		5.8			
Em. Red for 0.01 (tpy)		7.0			
Nationwide air impacts:		-			
No. of new models projected		- 1			
Nwide PM at 0.022 gridsof (tpy)		13			
NAME AND ADDRESS OF THE PARTY O					
N'wide PM st 0.014 gridsof (Ipy)		5			
N'wide em. red. for 0.014 (tpy)					
VICTOR DEL SER DE SERVER RESE		6			
N'wide PM at 0.01 gridsof (tpy) N'wide em rad, for 0.01 (tpy)		7			
A wide em. red, sor u.u.; (dy)					
N'wide testing and monitoring costs:					
Total number of fugitive affected facilities to be tested:		0			
No, with wet suppression sprays		o.			
No. with carryover or other fugitive control		0			
		-			
Total number of stacks to be tested:		9		Based on breakout of affected facility cfm (pp.4-1 to 4-7 of EPA-450/3-82-014)	
N'wide baseline testing/monitoring cost:				Test cost x no. new plants x no, affected facilities to be tested	
Total Method 9 initial fugitive testing cost		0	C		
Total Method 5 initial stack testing cost	S	63,000	C		
Total Method 9 initial stack testing cost	8	11,700	C	in the second se	
Total n'wide baseline testing/mont. cost.					
Capital (\$), YRS 1-5	S	74,700			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	3	18,227		CRF at 5 yrs, 7% interest = 0.244	
Capital (\$), YR 5+	5	1 1917			
Annualized (annual costs + annualized capital), \$/yr, YR 6+	S				
N'wide testing/monitoring cost under revised NSPS:					
Requirements for fugitive affected facilities		100	-		
Total Method 9 initial fugitive testing cost		0	C		
Total Method 9 repeat fugitive test cost (for wet supp. only)		0	C5 yr	8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Check that water flowing for wet suppression sprays		0	A	Frequency of water checks (times/yr)=	12
Method 9 for carryover or other fugitive control		0	A	Frequency of M9 monitoring (times/yr) =	0
Requirements for stack affected facilities					
Total Method 5 Initial stack testing cost	\$	53,000	C		
Total Method 9 initial stack testing cost	8	-	C	Method 9 stack opacity limit amitted for new	
Total Method 5 repeat stack lest cost	\$		C 5 yr		
Total Method 9 repeat stack test cost	8		C 5 yr	Method 9 stack opacity limit amitted for new	
Periodic visual inspections of BH	5		A	Frequency of visual inspections (timestyr) =	0
Periodic 30-minute M22 readings for BH's	\$	3,385	A	Frequency of 30-min M22 (times/yr) =	4
Total n'wide revised testing/mont, cost:		10,0100			
Capital (\$), YRS 1-5	\$	53,000			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$	18,757			
Capital (\$), YR 6+	5				
Annualized (annual costs + annualized capital), \$/yr, YR 5+	5	3.385			
Difference between baseline & revised NSPS Capital (\$), YRS 1-5				PARTICIPATION OF THE PARTICIPA	
	5	[11,700]		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.	
		C 10 1			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	5	531			
	\$ \$	3,385		includes 5-yr repeat lest costs includes 5-yr repeat lest costs	

Potential emission reduction from increased testing/monitoring on BH's		4:	Unable to quantify benefits for wet suppression.	
Excess PM from mattunctioning BHs (0.04 - 0.014), grideof	0.028		Data show that 0.04 grided can be expected from malfunctioning BH (e.g., torn bags)	
Excess PM from melfunctioning BH, lb/hr (x no. of plants)	0.2		Based on total model flow to BHs x no. of plants. Percent of equipment mailunctioning :	
Baseline testing/monitoring:			We show the way of the street	
Hours of excess emissions before noticed (1 yr x hr/yr)	8400		Assume takes 1 yr to detect problem, although could continue for longer since no testing/monitoring in current NSPS	
Total excess emissions, tov	0400		least all the content waters	
Revised NSPS testing/monitoring	-			
Hours of excess emissions before noticed (frequency x hr/yr)	2100		Assumes problem would be caught:	quarter
Total excess emissions, tpy	0.2			
Emission reduction from increased testing/monitoring, tpy	0.6 \$ 933		The state of the s	
Cost effectiveness of increased testing/monitoring (\$3on), YRS 1-5 Cost effectiveness of increased testing/monitoring (\$3on), YR 5+	\$ 5.954		Difference in annualized cost (S/yr) / Emission reduction (tpy)	
N'wide reporting and recordkeeping (R&R) costs:				
N'wide baseline R&R cost: One-time costs:				
Read instructions/rule (1 hr per NMPP)	\$ 104			
Planning/report for initial performance tests (30 hr per NMPP)		60.8(a) - report		
Planning/report for repeat performance tests (30 hr per NMPP, 20% fall	\$ 625			
Notification of construction/reconstruction (2 hr per NMPP)		60.7(a)(1)		
Notification of actual startup (2 hr per NMPP)		60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP) Notification of physical or operational change (2 hr per NMPP)		60.8(d) 60.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$ 937	- a (m)-)		
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	5			
Annual costs:	3 12			
Records of startups, shutdowns, maillunctions, etc. (1.5 hr per NMPP)	\$ 156	60.7(b)	Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet	
Record monitoring data (0 hr/affected facility)	s .		syet scrutorers have no parameter recording frequency. Also, incides based on on or well supplies from	
Semiannual wet scrubber monitoring devetion reports	\$ -	60.676(d)	Models based on beghouse or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 1,093			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$ 156			
N'wide R&R cost under revised NSPS:				
One-time costs				
Read instructionstrule (1 hr per NMPP) Plenning/report for initial performance tests (30 hr per NMPP)	\$ 104 \$ 3,124	60.8(a) - report		
Planning/report for repeat performance tests (30 hr per NMPP, 25% fall	\$ 781	no miss - rebour	increased fail rate to 25% for revised NSPS since compliance margin is smaller	
Planning/report for repeat tests after 6+ yrs	5 .			
Planning/report for repeat tests failed after 6+ yrs (5% fall rate,	5 -		Used 5% fall rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)	\$	60,7(a)(1)	Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP) Notification of initial performance test. (2 hr per NMPP)		60.7(a)(3) 60.8(d)		
Notification of repeat performance test (2 hr per NMPP) after 6+ yr.		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)		60.7(a)(4)	the second secon	
		- DOMESTICAL CONTRACTOR OF THE PARTY OF THE	Less than baseline because notification of construction/resonstruction om/ded. 5-yr repeat	
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$ 927		tests not included	
Total one-time costs divided by 5 yrs (\$/yr) YR 6+	\$.		Includes 5-yr repeat tests	
Annual costs: Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	\$ 156	60.7(b)		
Planning/report for annual M9 tests for fugitive points with carryover/oth		00.7107	16 h:/NMPP with fugitive points to be refested x 1.05 to account for 5% fail rate	
Record monitoring data	IV-50			
Recard water flow checks (0.1 hr/water spray/check)	\$.			
Record BH visual inspections (0.5 hr/BH/monitoring event)	\$			
Record BH M22 readings (0.2 hr/BH/monitoring event)	\$ 750	60.676(d)	Models based on haphouse or wet suppression	
Semiannual wet scrubber monitoring devation reports Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 1,833		HINNERS REDON ALL BOOKENESS OF MEET SHIPPINGS	
Total of one-time costs per year + annual costs (\$\forall r\) \text{ \text{Total of one-time costs per year + annual costs (\$\forall r\) \text{\text{\text{Y}}} \text{\text{\text{YR}}} \text{\text{\text{\text{\text{\text{Total of one-time costs per year + annual costs (\$\forall r\)}}	\$ 906			
Diffrence in R&R costs, \$Vyr YR 1-5	\$ 739			
Difference in R&R costs, \$Vy YR 6+	\$ 750			
The state of the s				

Parameter	Value	Note	Reference	-0	
Typical Plant size (tph): Model Plant No.	300		p. 6-7 of EPA-450/3-83-001a (April 1983 BID) p. 6-6 of EPA-450/3-83-001a (April 1983 BID)		
Gas flow to bachouses (cfm)	40000		p. 6-2 of EPA-450/3-83-001a (April 1983 BID)		
dan law at pallustrams fruits.	8000		p. or at the present desired to the present of the		
	22600				
Total gas flow	70600				
State State	8400				
Model hryr PM at 0 022 gr/dect (tpy)	55.9				
Life and oss dispositibili	30.6				
Air impacts per model:					
PM at 0.014 gr/dsof (tpy)	35.6				
Em. Red. for 0.014 (tpy)	20.3				
PM at 0.01 gridsof (tpy)	25.4				
Em Red. for 0.01 (lby)	30.5				
Lift Red for 0.07 (69)	300.07				
Nationwide air impacts					
No. of new models projected	1				
N'wide PM at 0,022 gr/dscf (tpy)	56				
N'wide PM at 0.014 gr/dsof (tpy)	36				
N wide PM at 0.074 gridsci (tpy) N'wide em, red, for 0.014 (tpy)	20				
A COST OF STREET SHEET SHEET	40				
N'wide PM at 0.01 gr/dsof (tpy)	25				
N'wide em, red. for 0.01 (Ipy)	30				
Nwide testing and monitoring costs:					
n wide testing and manioning costs: Total number of fugitive affected facilities to be tested:	0				
No with wet suppression sprays	o o				
No. with carryover or other fugitive control	q				
Total number of stacks to be tested	12		Based on breakout of affected facility clm (pp.4-1 to 4-7 of EPA-450/3-82-014)		
Nwide baseline lesting/monitoring cost:			Test cost x no. new plants x no. affected facilities to be tested		
Total Method 9 initial fugitive testing cost	0	C	(BOX GAST A (ID. 11thy piditia a 110. delection receives to be advised		
Total Method 5 initial stack testing cost	\$ 84,000	G			
Total Method 9 initial stack testing cost	\$ 15,600	C			
Total n'wide baseline testing/mont, cost:	START THE PROPERTY				
Capital (\$), YRS 1-5	\$ 99,600				
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$ 24,302		CRF at 5 yrs, 7% interest = 0.244		
Cepital (\$), YR 6+ Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$.			17	
Pullidaized (annual costs T annualized digital), aryr, 111 df					
N'wide testing/monitoring cost under revised NSPS					
Requirements for fugitive affected facilities					
Total Method 9 kultiel fugitive testing cost	0	C			
Total Method 9 repeat fugitive test cost (for wet supp. only)	0	C.5 yr	water the second	29.1	
Check that water flowing for wet suppression sprays Method 9 for carryover or other fugitive control	0	A	Frequency of water checks (times/yr)= Frequency of M9 monitoring (times/yr) =	12	
Requirements for stack affected facilities	· u		Frequency of the inchoding (immery) =	0	
Total Method 5 initial stack testing cost	\$ 84,000	0			
Total Method 9 Initial stack testing cost	\$.	C	Method 9 stack opacity limit omitted for new		
Total Method 5 repeat stack test cost	5 -	C.5 yr	A SAME A PROCESSAL OF PARTY OF THE CONTRACTOR OF		
Total Method 9 repeat stack test cost	\$	C 5 yr	Method 9 stack opacity limit omitted for new	89.7	
Periodic visual inspections of BH	\$	A	Frequency of visual inspections (times.lyr) =	0	
Periodic 30-minute M22 readings for BH's	\$ 4,514	A	Frequency of 30-min M22 (times/yr) =	4	90
Total n'wide revised testing/mont, cost. Capital (\$), YRS 1-5	\$ 64,000				
Annualized (annual costs + annualized capital), \$/yr. YRS 1-5	8 25.010				
Capital (\$), YR 6+	8				
Annuálizad (annual costs + annualizad capital), Styr, YR 6+	8 4,614		40		
Difference between baseline & revised NSPS			LOUDING TO SEE A CONTROL OF SEASON SEASON OF SEASON		
Capital (\$), YRS 1-5	\$ (16,600)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.		
	\$ 707				
Annualized (annual costs + annualized capital), \$/yr. YRS 1-5			STATE OF THE STATE		
Annualized (annual costs + annualized capital), \$1yt. YR 5+ Annualized (annual costs + annualized capital), \$1yt. YR 6+	\$ -		includes 5-yr repeat test costs includes 5-yr repeat test costs		

Sode esh

Potential emission reduction from Increased testing/monitoring on BH's	203		องสามารถเปลี้ยงและที่สามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามารถสามาร	
Excess PM from malfunctioning BHs (0.04 - 0.014), gr/dscf	0	126	Data show that 0.04 gridsol can be expected from mailunctioning BH (e.g., torn bags). Based on total model flow to BHs x no, of plants. Percent of equipment mailunctioning	
Excess PM from malfunctioning BH, lb/hr (x no. of plants)		8.0		51
Baseline testing/monitoring:				
and the second s	-	100	Assume takes 1 yr to detect paoblem, although could continue for longer since no testing/monitoring in current NSPS	
Hours of excess emissions before national (1 yr x hr/yr) Total excess emissions, by		3.3	mangimum bing in current Nor-o	
Revised NSPS testing/monitoring:		700		
Hours of excess emissions before naticed (frequency x hr/yr)		100	Assumes problem would be caught:	quarterly
Total excess emissions, tpy		0.8		
Emission reduction from increased testing/monitoring, tpy		2.5 85	Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$/ton), YRS 1-5 Cost effectiveness of increased testing/monitoring (\$/ton), YR 6+	\$ 1.5		Diserende in annualized cost (#31)/ Emission (#000000 (#9))	
Vwide reporting and recordkeeping (R&R) costs: Vwide baseline R&R cost:				
One-time costs:				
Read instructions/rule (1 hr per NMPP)		04		
Planning/report for initial performance tests (30 hr per NMPP)		24 60.8(a) - rap	ort	
		25		
Notification of construction/reconstruction (2 hr per NMPP)		08 60.7(a)(1) 08 60.7(a)(3)		
Notification of actual startup (2 hr per NMPP) Notification of initial performance test (2 hr per NMPP)		08 60.8(d)		
Notification of physical or operational change (2 hr per NMPP)		08 60.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5		37		
Total one-time costs divided by 5 ym (\$/yr) YR 5+	8			
Annual costs				
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	\$	56 60.7(b)		
			Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet suppression.	
Record monitoring data (0 hr/sffected facility)	\$	60.676(d)	Models based on baghouse or wet suppression	
Semiannual wet scrubber monitoring devation reports Total of one-time costs per year + annual costs (\$/vr) YR 1-5	\$ 10	93	spoots besed on anguivare of the supplement	
Total of one-time costs per year + annual costs (\$/yr) YR 6+		56		
Nwide R&R cost under revised NSPS				
One-time costs				
Read instructions/rule (1 hr per NMPP)		04		
Planning/report for initial performance tests (30 hr per NMPP)		24 60.8(a) - res	of .	
Planning/report for repeat performance tests (30 hr per NMPP, 25% fell		81	Increased tail rate to 25% for revised NSPS since compliance margin is smaller	
Planning/report for repeat tests after 6+ yrs	\$		Used 5% fall rate because few should fall given the ongoing monitoring.	
Planning/report for repeat tests falled after 6+ yrs (5% fail rule, Notification of construction/reconstruction (2 hr per NMPP)	s	60.7(a)(1)	Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP)		08 60.7(a)(3)	SALDINGS AND LINE IN LABOUR.	
Notification of initial performance test. (2 hr per NMPP)		(0)8.00 80		
Notification of repeat performance test (2 hr per NMPP) after 6+ yr:	\$	60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	\$	08 60.7(a)(4)		
	E 10	127	Less than baseline because notification of construction/resonatruction omitted. 5-yr repeat tests not included	
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5			Includes 5-yr repeat tests	
Total one-time costs divided by 5 yrs (\$/yr) YR 6+ Annual costs:	.5		includes pyr repeat total	
Records of startups, shuldowns, malfunctions, etc. (1.5 hr per NMPP)	\$	56 60.7(b)		
Planning/report for annual M9 tests for fugitive points with carryover/oths		777613.757100001 15	16 trrNMPP with fugitive points to be retested x 1.05 to account for 5% fall rate	
Record monitoring data:	121			
Record water flow checks (0.1 hr/water spray/check)	5	5		
Record BH visual inspections (0.5 hr/BH/monitoring event)	3			
Record BH M22 readings (0.2 hr/BH/monitoring event)		60.676(d)	Models based on baghouse or wet suppression	
Semiannual wet sambber monitoring develor reports		83	Historica sensor sel paginosa di mat applicationi	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5 Total of one-time costs per year + annual costs (\$/yr) YR 6+		56		
Diffrerence in R&R costs, \$/yr YR 1-5	9	189		

Parameter	Val	lue	Note	Reference	
Typical Plant size (tph):		25		p. 8-7 of EPA-450/3-83-001a (April 1983 B/D)	
Model Plant No.		2		p. 6-6 of EPA-450/3-63-001s (April 1983 BID)	
Gas flow to baphouses (cfm):		11500 4700		p. 5-2 of EPA-450/3-63-001# (April 1983 BiD)	
Total ges flow		16200			
Model hrivr		8400			
PM at 0.022 gr/dscf (tpy)		12.8			
Air Impacts per model					
PM at 0.014 gr/dscf (tpy)		8.2			
Em. Red. for 0.014 (tpy)		4.7			
PM at 0.01 gr/decf (tpy)		5.8			
Em. Red. for 0.01 (lpy)		7.0			
Nationwide air impacta:					
No. of new mode is projected.		2			
N'wide PM at 0.022 gridecf (tpy)		25			
N'wide PM at 0.014 gridect (tpy)		16			
N'wide em. red. for 0.014 (tpy)		9			
N'wide PM at 0.01 gr/dscf (toy)		12			
N'wide em. red. for 0.01 (tpy)		14			
N'wide testing and monitoring costs:					
Total number of fugitive affected facilities to be tested:		0			
No. with wet suppression sprays		0			
No. with carryover or other fugitive control		a			
Total number of stacks to be tested:		9		Based on breakout of affected facility c/m (pp.4-1 to 4-7 of EPA-450/3-82-014)	
N'wide baseline testing/monitoring cost:				Test cost x no. new plants x no. affected lacilities to be tested	
Total Method 9 Initial flightive testing cost	100	0	C		
Total Method 5 initial stack testing cost Total Method 9 initial stack testing cost		6,000	C		
Total n'wide beseline testing/mont, cost	\$ 2	3.400	G.		
Capital (\$), YRS 1-5	\$ 14	9.400			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$ 3	6.454		CRF at 5 yrs. 7% interest = 0.244	
Capital (\$), YR 6+	\$				
Annualized (ennual costs + annualized capital), \$/yr, YR 6+	\$				
N'wide testing/monitoring cost under revised NSPS. Requirements for tupitive affected facilities.					
Total Method 9 initial fugitive testing cost		0	C		
Total Method 9 repeat fugitive test cost (for wet susp. only)		n	C 5 yr		
Check that water flowing for wet suppression sprays		0	A	Frequency of water checks (times/yr)=	12
Method 9 for carryover or other fugitive control		0	A	Frequency of M9 monitoring (times/yr) =	0
Requirements for stack affected facilities Total Method 5 initial stack testing cost	\$ 12	6,000	C		
Total Method 9 initial stack testing gost	\$	0,000	č	Method 9 stack opacity Imit omitted for new	
Total Method 5 repeat stack test cost	5		C 5 yr	Specialist - Control - Con	
Total Method 9 repest stack test cost	\$	*	C 5 yr	Method 9 stack opacity limit omitted for new	
Periodic visual inspections of BH	\$	1000	A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's	\$	6,771	A	Frequency of 30-min M22 (timestyr) =	4
Total n'wide revised testing/mont, cost: Capital (\$), YRS 1-5	\$ 12	6.000			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5		7,515			
Capital (\$) YR 6+	5				
Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$	6,771			
Difference between baseline & revised NSPS					
Capital (\$), YRS 1-5		3,400)		Difference due to omitted M9 for stacks. Does not include 5-yr repest tests.	
Annualized (annual costs + annualized capital), 5/yr, YRS 1-5		1,061			
Capital (\$), YR 6+ Annualized (annual costs + annualized capital), \$/yr, YR 6+	5	6,771		includes 5-yr repeat test costs includes 5-yr repeat test costs	

Pumice

	0.02		Data show that 0.04 gr/dscf can be expected from malfunctioning BH (e.g., forn begs)	
Excess PM from maifunctioning BHs (0.04 - 0.014), gridsof	0.02	5		
Excess PM from malfunctioning BH, lb/hr (x no. of plants) saseline testing/monitoring:	D.	4	Based on total model flow to BHs x no. of plants. Percent of equipment maifunctioning -	5
and the second receiving			Assume takes 1 yr to delect problem, although could continue for longer since no	
Hours of excess emissions before noticed (1 yr x hr/yr)	840		testing/monitoring in current NSPS	
Total excess emissions, tpy	1.	5		
Revised NSPS testing/monitoring:		400	Proceedings of the second seco	quarterly
Hours of excess emissions before noticed (frequency x hr/yr)	210		Assumes problem would be caught:	quarterry
Total excess emissions, tpy Emission reduction from increased testing/monitoring, tpy	1			
critisation reduction from increased testing/monitoring (\$Aon), YRS 1-5 \$	931		Difference in annualized cost (S/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$7on), YR 5+	5,954		STORY OF THE STORY	
Wwide reporting and recordkeeping (R&R) costs:				
Vwide baseline R&R cost:				
One-time costs:	200	ES.		
Read instructions/rule (1 hr per NMPP) Planning/report for initial performance tests (30 hr per NMPP) \$ 1.50 miles 1.5		60.8(a) - report		
Planning/report for initial performance tests (30 hr per NMPP) 20% fall \$				
Notification of construction/reconstruction (2 hr per NMPP)		60.7(a)(1)		
Notification of actual startup (2 hr per NMPP)		60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)	41	60.8(d)		
Notification of physical or operational change (2 hr per NMPP)		60.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5				
Total one-time costs divided by 5 yrs (\$/yr) YR 8+				
Annual costs:	2 527	0.0000000		
Records of startups, shuldowns, mailunctions, etc. (1.5 hr per NMPP)	5 31	60.7(b)	Wet scrubbers have no parameter recording frequency. Also, models based on BH or	
Record monitoring data (0) brightested facility			wet appression.	
Record monitoring data (0 hr/affected facility) Samiannum wat scrubber monitoring devation reports	0.00	60 676(d)	Models hased on baghquae or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	2,18			
Total of one-time costs per year + annual costs (\$/yr) YR 6+				
total of different coats har year / minum coats (a-)() (1/4)				
Nwide R&R cost under revised NSPS:				
One-time costs				
Read instructions/rule (1 hr per NMPP)	\$ 20			
Planning/report for initial performance tests (30 hr per NMPP)		60.8(a) - report	Increased fall rate to 25% for revised NSPS since compliance margin is smaller.	
Planning/report for repeat performance tests (30 hr per NMPP, 26% fell	1,56	6.	Highested Rit 199 to 1539 for revision works at the combening model at sweller	
Planning/report for repeat tests after 6+ yrs Planning/report for repeat tests falled after 6+ yrs (5% full rate,			Used 5% fell rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)		60.7(a)(1)	Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP)		7 60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)		7 60.8(d)		1
Notification of repeat performance test (2 hr per NMPP) after 6+ yrs 1	\$ -	60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	\$ 41	7 60.7(a)(4)	TO BOOK OF A MODERN AS OLD THE CONTRACT TO A MICHAEL TO A MODERN ASSOCIATION AND A MICHAEL BEING THE SERVICE OF	
			Less than baseline because notification of construction/resonstruction omitted. 5-yr	
	\$ 1,85	4	repeat lests not included	
	\$ -		Includes 5-yr repeat tests	
Annual costs:	. 44	2 60.7(b)		
		£ 50.7(b)	16 hr/NMPP with fublive points to be retested x 1.05 to account for 5% fall rate	
Planning/report for annual M9 tests for fugitive points with carryover/oths: Record monitoring data:			10 (Bittel 1, mot inflate bound in the remains a line to encount at any section	
	s -			
	ŝ			
	\$ 1,50	0		
Semiannual wet scrubber monitoring devation reports	\$	60.676(d)	Models based on beginning or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 3.66			
Total of one-time costs per year + annual costs (s/yr) YR 6+	5 1,81	2		
Total of one-time costs per year + annual costs (\$/yr) YR 6+				
Total of one-time costs per yeer + annual costs (\$/yr) YR 6+ Difference in R&R costs, \$/yr YR 1-5	\$ 1,81 \$ 1,47 \$ 1.50	9		

Parameter		Value	Note	Reference	
Typical Plast size (tph):		10	200	p. 6-7 of EPA-450/3-83-001a (April 1983 BID)	
Model Plant No.		2		p. 6-6 of EPA-450/3-83-001a (April 1983 BID)	
Gas flow to baghouses (cfm):		10200		p. 5-2 of EPA-450/3-83-001a (April 1983 BID)	
Total gas flow		14200			
Model hove		8400			
PM at 0.022 gr/dsof (tpy)		11.2			
Air impacts per model:		2000000			
PM at 0.014 gr/dsof (tpy)		7.2			
Em. Red. for 0.014 (tpy)		4.1			
PM it 0.01 pr/decf (tpv)		5.1			
Em. Red. for D.01 (tpy)		6.1			
Nationwide air impeds:				N.	
No. of new models projected		. 6			
N/Wide PM at 0.022 gridsof (tpy)		90			
N'wide PM at 0.014 goldsof (tpy)		57			
N'wide am. red. for 0.014 (tpy)		33			
N'wide PM at 0.01 gridsof (tpy)		41			
N'wide em. red. for 0.01 (tpy)		49			
24 washing a reconstruction of the case o					(4)
N'wide testing and monitoring costs: Total number of fugitive affected facilities to be tested.		Ö			
No, with wet suppression sprays		0			
No. With carryover or other fugitive control		0		×	
Total number of stacks to be tested:		9		Based on breakout of affected facility cfm (pp.4-1 to 4-7 of EPA-450/3-62-014).	
N'wide baseline testing/monitoring cost:				Test cost x no. new plants x no. affected facilities to be tested	
Total Method 9 initial fugitive testing cost		0	C		
Total Method 5 initial stack testing cost	\$	504,000	C		
Total Melhod 9 initial stack testing cost	\$	93,600	C		
Total n'wide baseline leating/mont. cost. Capital (\$), YRS 1-9	5	597,600			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	5	145,814		CRF at 5 yrs, 7% interest = 0.244	
Capital (S), YR 5+	5	(40,019		CRF at 5 yrs, 7 % interest = 0.244	
Annualized (annual costs + annualized capital), \$7yr, YR 6+	\$	្			
N'wide testing/monitoring cost under revised NSPS:					
Requirements for fugitive affected facilities					
Total Method 9 Initial fugitive testing cost		D	G		
Total Method 9 repeat fugitive test cost (for wel supp. only)		D	□ 5 yr	2 9 17 17 17 17 17 17 17 17 17 17 17 17 17	
Check that water flowing for well suppression sprays Method 9 for carryover or other flugitive control		D	A	Frequency of water checks (times/yr)-	12
Requirements for stack affected facilities		D	A	Frequency of M9 manitoring (times/yr) =	0
Total Method 6 initial stack testing cost	\$	504,900	C		
Total Method 9 Initial stack testing cost	5	304,000	c	Method 9 stack opacity limit amitted for new	
Total Method 5 repeat stack test cost	5	-	C 5 vr	The court of mark appears of the artifact for the court of the court o	
Total Method 9 repeat stack test cost	8	- 2	C 5 yr	Method 9 stack opacity limit omitted for new	
Pariodic visual inspections of 8H	5	1.2	A	Frequency of visual inspections (times/yr) =	0
Periodic 30-minute M22 readings for BH's	5	27,083	A	Frequency of 30-min M22 (times/yr) =	4
Total n'wide revised testing/mont. cost:					
Capital (\$), YRS 1-6	5	504,000			
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	\$	150,059			
Capital (\$), YR 6+ Annualized (annual costs + annualized capital), \$(vr. YR 6+	5	27,083		includes repeat test costs. includes repeat test costs	
Difference batween baseline & revised NSPS		21,000			
Capital (\$) YRS 1-5	- 5	(93,600)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.	
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	5	4.245		Control of the Contro	
		1000		WORK 12	
Capital (\$), YR 6+	5			includes 5-yr repeat test costs	

	0.026		Data show that 0.04 grideof can be expected from malfunctioning BH (e.g., torn bags)	
			Based on total model flow to BHs x no. of plants. Percent of equipment malfunctioning =	5%
			Assume takes 1 or to detect problem, although could continue for longer since no	
	8400		testing/monitoring in current NSPS	
	5.3	Ŕ.		
	mann.	3	Assumed analytical country to according	quarterly
			Assumes probatil wood de caugit.	dominant.
			Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
\$	3,792			
	223			
5 2				
)	
\$	1,666	60.7(a)(3)	M .	
5				
2				
5	1,250	60.7(b)		
A		DERICO POR		
5	4			
5	_		Models based on baghouse or wet suppression	
	1,250			
	833			
5 2				
			Increased fail rate to 25% for revised NSPS since compliance mergin is smaller	
\$				
3				
\$	0.630		Omitted from NSPS revision	
5				
	1,000	_ out (a)(-)	Less than baseline because notification of construction/resonstruction omitted. 5-yr repeat	
	7,414		tests not included	
\$			Includes 5-yr repeat tests	
		00.745		
	1,250	60.7(b)	16 hr/NMPP with funitive points to be retested x 1.65 to account for 5% fall rate	
100			to the same a series begins to be respected to the series of the series	
2	23			
S				
S	5,998		ASSIVED TWO SEATING OF CHICAGON DE	
S		60.676(d)	Models based on baghouse or wat suppression	
\$	7,248		The second secon	
100	7,248 5.915		1 10	
	25 555555555 5 5555	\$ 4900 \$ 1,064 \$ 1,666 \$ 1,666	\$ 8.33 \$ 24.592 \$ 60.7(a)(1) \$ 1.666 \$ 60.7(a)(1) \$	Based on total model flow to BHz x no. of plants. Percent of equipment malfunctioning - Assumes takes 1 yr to delect problem, although could continue for longer since no testing/monitoring in current NSPS. 2100 1.3 4.0 1.064 5.6792 Section 1.064 Collision 1.064 Collision 1.064 Collision 1.064 Collision 1.064 Collision 1.064 Collision 1.066 Colli

Parameter		Value	Note	Reference			
Typical Plant size (tph):		10		p. 6-7 of EPA-450/3-83-001s (April 1983 BiD)			
Model Plant No.		2		p. 6-6 of EPA-450/3-63-001s (April 1683 6/D)			
Gas flow to baghouses (cfm):		10200		p. 5-2 of EPA-450/3-83-001a (April 1983 BiD)			
		4000					
Total gas flow		14200					
Model tirtyr		5500					
PM at 0.022 gr/dscf (lpy)		7.4			-		
42/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/54/45/5							
Air Impacts per model		77					
PM at 0.014 goldsof (by)		4,7 2.7					
Em. Red for 0.014 (tpy)		2.7					
PM at 0.01 grided (toy)		3.3					
Em. Red. for 0.01 (tpy)		4.0					
Em. rios. to stor juy;		4.0					
Nationwide air impacts							
No. of new moders projected		1					
N'wide PM at 0.022 pridsof (tpy)		7					
We stand the partition of the stand of the s							
N'wide PM at 0.014 gridsof (tpy)		5					
N'wide em. red. for 0.014 (tpy)		3					
N'wide PM at 0.01 gr/dscf (tpy)		3					
N'wide em, red, for 0.01 (tpy)		4					
			*				
N'wide testing and monitoring costs:							
Total number of fugitive affected facilities to be tested:		0					
No. with wet suppression sprays		0					
No. with carryover or other fugitive control		0					
				2 I S V (SC 152 M 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Total number of stacks to be tested:	46	9		Based on breakout of affected facility ofm (pp.4-1 to 4-7 of EPA-450/3-82-014)			
Nwide baseline testino/monitoring cost:				Test cost x no. new plants x no, affected facilities to be tested			
Total Method 9 initial lugitive testing cost		0	C	Test cost x no. new plants x no, alrected radillate to be tested			
Total Method 5 initial stack testing cost	5	83,000	C				
Total Method 9 initial stack testing dos	\$	11,700	c				
Total riwide baseline testing/mont, cost	-	11,700					
Capital (S) YRS 1-5	5	74.700					
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	3	15,227		CRF at 5 yrs, 7% interest = 0.244			
Capital (5) YR 6+	\$	300,000					
Annuelized (annuel costs + annuelized capital), \$/yr, YR 5+	5						
N'wide testing/monitoring cost under revised NSPS:							
Requirements for fugitive affected facilities							
Total Method 9 Initial fugitive testing cost		0	C		77		
Total Method 9 repeat fugilive test cost (for wet supp. only)		Ω	C 5 yr				
Check that water flowing for wet suppression sprays		0	A	Frequency of water checks (timeslyr)=		12	
Method 9 for carryover or other fugitive control		0	A	Frequency of M9 monitoring (times/yr) =		0	
Requirements for stack affected facilities							
Total Method 5 Initial steck testing cost	\$	63,000	E	METACONE QUIMORAS CONTRATA PORTOPIAD CANADO MARCO			
Total Method 9 initial stack testing cost	\$	-	C	Method 9 stack opacity limit omitted for new			
Total Method 5 repeat stack test cost	\$	17	C 5 yr	El Control de Control			
Total Method 9 repeat stack test cost	\$	-	C 5 yr	Method 9 stack opacity limit omitted for new		120	
Periodic visual inspections of BH	5	W. W. W.	A:	Frequency of visual inspections [times/yr] =		0	
Periodic 30-minute M22 readings for BH's	. 5	3,385	A	Frequency of 30-min M22 (times/yr) =		4	
Total n'wide revised lesting/mont, cost:	490						
Capital (\$), YRS 1-5	5	63,000					
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5 Capital (\$), YR 6+	5	18,757					
Annualized (annual costs + annualized capital), S/vr. YR 6+	8	3.385					
ловмаясос (миниси совте + виновясео саркая). 3/уг., ТН 0+		3,300					
Difference between baseline & revised NSPB							
Capital (\$), YRS 1-5	- 3	(11,700)		Difference due to omitted M9 for stacks. Does not include 5-yr repeat tests.			
Annualized (annual costs + annualized capital), 3/yr, YRS 1-5	5	531		Desired the second fire of success of the second of the se			
Capital (\$), YR 6	S			includes 5-w repeat test costs			
	5	3,385		includes 5-yr repeat test costs includes 5-yr repeat test costs			

Potential emission reduction from increased testing/monitoring on BH's		0.000		Unable to quantify benefits for well suppression. Data show that 0.04 gridsof can be expected from mailunctioning BH (e.g., torn begs)	0
Excess PM from malfunctioning BHs (0.04 - 0.014), gr/dscf		0.026		and the same of the service of the s	
Excess PM from malfunctioning BH, lib/hr (x no. of plants) Baseline testing/monitoring:		0.2		Based on total model flow to BHs x no, of plants. Percent of equipment melfunctioning =	5%
Baseline testino/monitoring.				Assume takes 1 yr to detect problem, although could continue for longer since no	
Hours of excess emissions before noticed (1 yr x hr/yr)		5500		testing/monitoring in current NSPS	
Total excess emissions, tpy		0.4			
Revised NSPS testing/monitoring:		200			quartedy
Hours of excess emissions before noticed (frequency x hr/yr)		1376		Assumes problem would be caught:	draueny
Total excess emissions, thy Emission reduction from increased testing/monitoring, thy		0.1			
Emission reduction from increased testing/monitoring, by Cost effectiveness of increased testing/monitoring (\$4on), YRS 1-5		1.626		Difference in annualized cost (\$/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$/ton), YR 8+	8 1	0,374			
Nwide reporting and recordkeeping (R&R) costs					
N'wide baseline R&R cost:					
One-time costs:	1040				
Read instructions/rule (1 hr per NMPP)	5	104	60.8(a) - report		
Planning/report for initial performance tests (30 hr per NMPP) Planning/report for repeat performance tests (30 hr per NMPP, 20% fail		625	on o(a) - tehour		
Notification of construction/reconstruction (2 hr per NMPP)	S		60.7(a)(1)		
Notification of actual startup (2 hr per NMPP)	3		60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP)	\$		60.8(d)		
Notification of physical or operational change (2 hr per NMPP)	5		50.7(a)(4)		
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$	937	OSCHERORICA		
Total one-time costs divided by 5 yrs (\$/yr) YR 6+ Annual costs:	\$				
Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	\$	156	60.7(b)	Wet scrubbers have no parameter recording frequency. Also, models based on BH or wet	
Record monitoring data (0 Infaffected facility)	5			suppression.	
Semiannual wet scrubber monitoring devation reports	S	-	60.676(d)	Models based on baghouse or wel suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5 Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$	1,093 156			
N'wide R&R cost under revised NSPS					
One-time costs					
Read instructions/rule (1 hr per NMPP)	S	104			
Planning/report for initial performance tests (30 hr per NMPP)	S		60.8(a) - report	increased fail rate to 25% for revised NSPS since compliance margin is smaller	
Planning/report for repeat performance tests (30 hr per NMPP, 25% full	\$	781		increased an rate to 55% for levised IASUS since combating marking automat	
Planning/report for repeat tests after 6+ yrs Planning/report for repeat tests failed after 6+ yrs (5% fall rate,				Used 5% fall rate because few should fall given the ongoing monitoring.	
Notification of construction/reconstruction (2 hr per NMPP)	5	100	60.7(8)(1)	Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP)	5	208	60.7(a)(3)	CHANGE STANDON CONTRACT	
Notification of initial performance test (2 hr per NMPP)	S		60.8(d)		
Notification of repeat performance test (2 hr per NMPP) after 6+ yr.	7 5		60.8(d)		
Nutification of physical or operational change (2 hr per NMPP)	8	208	60.7(a)(4)		
Manager - And Company Clay I and Containing and Containing Age - Containin		0.00		Less than beseline because notification of construction/resonstruction amitted. 5-yr repeat	
Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$	927		tests not included	
Total one-time costs divided by 5 ym (\$/yr) YR 6+	3	*		Includes 5-yr repeat tests	
Annual costs: Records of startups, shutdowns, malfunctions, etc. (1.5 hr per NMPP)	5	156	60.7(b)		
Planning/report for annual M9 tests for fugitive points with carryover/oth		150	00.7(0)	16 hr/NMPP with fugilive points to be retested x 1.05 to account for 5% fail rate	
Record monitoring data:	100			Construction at the state of the property and the state of the state o	
Record water flow checks (0.1 hr/water spray/check)	\$				
Record BH visual inspections (0.5 hr/BH/monitoring event)	\$	***			
Record BH M22 readings (0.2 hr/BH/monitoring event)	\$	750		\$250 PM 20 W 20	
Semiannual wet scrubber monitoring deviation reports	\$	-	60.675(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$	1,833			
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$	906			
Diffrerence in R&R costs, \$/yr YR 1-5	\$	739			
Diffrerence in R&R costs, \$/yr YR 6+	3	750			
F					

Parameter	Value	Note	Reference	_	
Typical Plant size (lph):	1	0	p. 6-7 of EPA-450/3-83-001a (April 1983 BID)		
Model Plant No.		Ź	p. 6-6 of EPA-450/3-83-001a (April 1983 BID)		
Gas flow to baghouses (clm)	1020 400	0	p. 8-2 of EPA-450/3-83-001a (April 1983 BID)		
Total gas flow	1420	Ď.			
Model tr/yr	840	0			
PM et 0.022 gr/dsof (tpy)	11.	2			
Air Impacts per model:		-			
PM at 0.014 gr/dacf (tpy)	7.				
Em. Red. for 0.014 (loy)	4.	E:			
PM at 0.01 gr/dad (tpy) Em. Red. fc: 0.01 (tpy)	5.				
Netigravide air Impeats: No. of new models projected		7			
N'wide PM at 0.022 gr/dsof (tpy)	1				
N'wide PM at 0.014 gr/dsof (tpy)		,			
N'wide am. red. for 0.014 (tpy)		1			
N'wide PM at 0:01 grided (tpy)		9			
N'wide em. red. for 0.01 (tpy)		ì			
Physical Company of the Company of t					
N'wide testing and monitoring costs: Total number of fugitive affected facilities to be tested:		5			
No. with wet suppression sprays		1			
No. with carryover or other fugilive control		1			
Total number of stacks to be fested:	â	1	Sased on breakout of affected tacility ofm (pp.4-1 to 4-7 of EPA-450/3-82-014)		
N'wide bassifine testing/monitoring cost:		NO 00	Test cost x no. new plants x no. affected facilities to be tested		
Total Method & Initial fugitive testing cost		3 C			
Total Method 5 initial stack testing cost	\$ 63,000				
Total Method 9 initial stack testing cost Total n'wide baseline testing/mont cost	\$ 11,700				
Capital (\$), YRS 1-5	5 74.700				
Annualized (annual costs + annualized capital), \$\text{Syr, YRS 1-E}	\$ 18,227		CRF at 5 yrs, 7% Interest = 0.244		
Capital (\$), YR 6+	\$				
Annualized (annual costs + annualized capital), \$/yr, YR 6+	5 -				
N'wide testing/monitoring cost under revised NSPS:					
Requirements for fugitive affected facilities) C			
Total Method 9 initial lugitive testing dost Total Method 9 repeat fugitive test cost (for wet supp. only)) C) C5yr			
Check that water flowing for wat suppression sprays) A	Frequency of water checks (times/yr)=	12	
Method 9 for carryover or other fugitive control) A	Frequency of M9 monitoring (times/yr) =	Ô	
Requirements for stack affected facilities					
Total Method 5 Initial stack testing cost	\$ 63,000	C			
Total Method 9 Initial stack teating cost	s -	C	Method 9 stack opacity limit omitted for new		
Total Method 5 repeat stack test cost	\$.	C 5 yr			
Total Method 9 repeat stack test cost	\$ -	C 5 ye	Mathod 9 stack opacity limit omitted for new		
Periodic visual inspections of SH	3	A	Frequency of visual inspections (timestyr) =	0	
Periodic 30-minute M22 readings for BH's Total n'wide revised testing/mont. cost:	5 3,385		Frequency of 30-min M22 (times/yr) =	4	
Capital (\$), YRS 1-5	5 63,000				
Annualized (annual costs + annualized capital), \$/yr, YRS 1-5	5 18,757				
Capital (S), YR 5+	5 10,707				
Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$ 3,385				
Difference between baseline & revised NSPS					
Capital (\$), YRS 1-5	\$ (11,700		Difference due to omitted M9 for stocks. Does not include 5-yr repeat tests.		
Annuelized (annuel costs + annualized capital), \$/yr, YRS 1-5	\$ 531		GAZGAMOVAN VATACISTA ANGUSTA F		
Capital (\$), YR 6+	5		includes 5-yr repeat test costs		
Annualized (annual costs + annualized capital), \$/yr, YR 6+	\$ 3,385		includes 5-yr repeat test costs		

			mica	
Potential emission reduction from increased testing/monitoring on BH's			Unable to quantity benefits for wet suppression.	
Excess PM from malfunctioning BHs (0.04 - 0.014), gr/dscf	0.026	Ē	Data show that 0.04 grided can be expected from matturctioning 6H (e.g., forn bags)	
Excess PM from malfunctioning BH, fa/hr (x no. of plants) Baseline testing/monitoring:	0.2	ŧ	Based on total model flow to BHs x no. of plants. Percent of equipment malfunctioning =	51
Hours of excess emissions before noticed (1 yr x hrlyr)	8400		Assume takes 1 yr to detect problem, although could continue for longer since no testing/monitoring in current NSPS	
Total excess emissions, toy Revised NSPS testing/monitoring:	0.7	č		
Hours of excess emissions before noticed (frequency x hr/yr) Total excess emissions, tpy	2100	2	Assumes problem would be caught:	quarterly
Emission reduction from increased testing/monitoring, toy Cost effectiveness of increased testing/monitoring (\$4on), YRS 1-5	\$ 1,064	3	Difference in annualized cost (S/yr) / Emission reduction (tpy)	
Cost effectiveness of increased testing/monitoring (\$/ton), YR 6+	\$ 6,792			
N'wide reporting and recordkeeping (R&R) costs: N'wide baseline R&R cost:				
One-time costs. Read instructions/rule (1 hr per NMPP)	\$ 104			
Planning/report for initial performance tests (30 hr per NMPP) Planning/report for repeal performance tests (30 hr per NMPP, 20% fail	\$ 3,124 \$ 625	60.8(a) - report		
Notification of construction/reconstruction (2 hr per NMPP) Notification of actual startup (2 hr per NMPP)		60.7(a)(1) 60.7(a)(3)		
Notification of initial performance test (2 hr per NMPP) Notification of physical or operational change (2 hr per NMPP)	\$ 208	60.8(d) 60.7(a)(4)		
Total one-time costs divided by 5 ym (\$/yr) YR 1-5 Total one-time costs divided by 5 ym (\$/yr) YR 6+	\$ 937 \$ -			
Annual costs: Records of startups, shuldowns, malfunctions, etc. (1.5 hr per NMPP)	\$ 156	60.7(b)		
Record monitoring data (0 hr/affected facility)	8	A.7575.1876	Wet scrubbers have no parameter recording frequency. Also, models based on SH or wet auppression.	
Semiannual wet scrubber monitoring devation reports Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 1,093	60.676(d)	Models based on baghouse or wet suppression	
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$ 156			
N'wide R&R cost under revised NSPS: One-time costs				
Read instructions/rule (1 hr per NMPP) Planning/report for initial performance tests (30 hr per NMPP)	\$ 104 \$ 3.124	60,8(a) - report		
Planning/report for repeat performence tests (30 hr per NMPP, 25% fell Planning/report for ropeat tests after 6+ yrs.		outaint - report	Increased fall rate to 25% for revised NSPS since compliance margin is smaller	
Planning/report for repeat tests falled after 6+ yrs (5% fall rate, Notification of construction/reconstruction (2 hr per NMPP)	\$	60.7(a)(1)	Used 5% fall rate because few should fail given the ongoing monitoring. Omitted from NSPS revision	
Notification of actual startup (2 hr per NMPP)	\$ 208	60.7(a)(3)	Children For 1973 (even)	
Notification of initial performance test (2 hr per NMPP) Notification of repeat performance test (2 hr per NMPP) after 6+ yr:	8 .	60.8(d) 60.8(d)		
Notification of physical or operational change (2 hr per NMPP) Total one-time costs divided by 5 yrs (\$/yr) YR 1-5	\$ 927	_60.7(a)(4)	Less than baseline because notification of construction/reconstruction omitted. 5-yr repeat tests not included	
Total one-time costs divided by 5 ym (\$/yr) YR 6+ Annual costs:	\$ -		Includes 5-yr repeat tests	
Records of startups, shutdowns, melfunctions, etc. (1.5 hr per NMPP). Planning/report for annual M9 tests for fugitive points with carryover/oths.		60.7(b)	16 hrNMPP with fugilitive points to be retested x 1.05 to account for 5% fall rate	
Record monitoring data: Record water flow checks (0.1 hr/water spray/check) Record BH visual inspections (0.5 hr/BH/monitoring event)	s - s -			
Record BH M22 readings (0.2 hr/6H/monitoring event)	\$ 750		Models based on baghouse or well suppression	
Semiannual wet scrubber monitoring devation reports Total of one-time costs per year + annual costs (\$/yr) YR 1-5	\$ 1,833		winning miseri Ari neithones of Ari unbhussami	
Total of one-time costs per year + annual costs (\$/yr) YR 6+	\$ 906			
Difference in R&R costs, S/yr YR 1-5 Difference in R&R costs, S/yr YR 5+	\$ 739 \$ 750			
TO THE PROPERTY OF SAID AND THE POST OF SAID AND				

Attachment 1B: Summaries of Other Testing/Monitoring Options Considered

ATTACHMENT 1B

Variations in stack testing and monitoring costs

			8.0	Additional annualized cost per plant (\$/yr)*				
Variation	Initial M5. Omit M9. Initial M5. Omit M9. Initial M5. Omit M9. Initial M5. Omit M9. Initial M5. Repeat M5 every 5 yrs. Omit M9. Fraction of the control of t	Repeat testing	Monitoring	Yr 1-5:	Yr 6+:			
1		Annual M5	Quarterly 30-min M22.	68 - 89K	71 - 93K			
2		Repeat M5 every 5 yrs.	Quarterly 30-min M22.	1 - 2K	20 - 27K			
3		for stacks 2500 acfm and	Quarterly 30-min M22.	1 - 2K	8 - 27K			
Selected Option		No repeat tests	Quarterly 30-min M22.	1 - 2K	4 - 6K			
5	Initial M5. Omit M9.	No repeat tests	Monthly 30-min M22.	10 - 13K	12 - 17K			
6	Initial M5 and M9.	Repeat M5 every 5 yrs for stacks 2500 acfm and greater. Repeat M9 annually.	Semi-annual 30-min M22.	16 - 20K	19 - 41K			

Variations in fugitive testing and monitoring costs

	A Initial M9 An B Initial M9 M9 for C Initial M9 M9 for D Initial M9 M9 for E Initial M9 An fac spr car			Additional annualized cost per plant (\$/yr)*			
Variation	Initial testing	Repeat testing	Monitoring	Yr 1-5:	Yr 6+:		
Α	Initial M9	Annual M9 for all	Monthly water flow check for water sprays.	8K	10K		
В	Initial M9	M9 repeated every 5 yrs for all affected facilities	Daily water flow check for water sprays.	64K	67K		
C	Initial M9	M9 repeated every 5 yrs for all affected facilities	Weekly water flow check for water sprays.	12K	15K		
D	Initial M9	M9 repeated every 5 yrs for all affected facilities	Monthly water flow check for water sprays.	2K	5K		
Е	Initial M9	Annual M9 for affected facilities without water sprays (i.e., with carryover/other fugitive control).	Monthly water flow check for water sprays.	6K	7K		
Selected Option	Initial M9	M9 every 5 years for affected facilities without water sprays (i.e., with carryover/other fugitive control).	Monthly water flow check for water sprays.	2K	5K		
G	Initial M9	No repeat tests	Monthly water flow check for water sprays.	2K	3K		

^{*}Annualized initial test costs occur in years 1-5. Any annualized 5-yr repeat test costs would occur in year 6+. Annual test costs would occur every year.

Initial M9 Monthly water flow check for water sprays Repeat (every 5 yrs) M9 for affected facilities with carryover/oth

SCENARIO:

Mineral type	No. new model plants	Bassiin		Baseline annualized cost		tal cost		t-revision ualized cost		rence in al cost		rence in ralized cost	Potential emission reduction,* tpy	Potenti	al cost veness (\$/ton)	Difference in cost per pla	
Crushed & Broken stone	96	5	915,200	5 326,275	S	457,600	5	516,134	3	(457,600)	5	187,860	111	\$	1,692	\$	1,95
Sand & Gravel	ALC: NO.	1000	THE REAL PROPERTY.		1000		Jan .		100 8		109		Harrison Delivers				
Construction	208	\$	1.982,933	\$ 711,282	5	991,467	5	1,118,291	5	(991,487)	8	407,029	241	\$	1,692	\$	1,95
Industrial	010	8	9,533	5 3,420	8	4,767	8	6,376	S	(4,767)	8	1,857	1	\$	3,364	\$	1,96
Noys:		1		MIPE STATE OF THE SERVICE	100		15				1000		E STATE OF THE PARTY OF THE PAR				
Kaolin	None	MESSEL			100						100						
Fireciay	None	5000		Control of the last of	F000		17.50		PAGE 1		1		STATE OF THE PARTY				
Bentcrite	1	5	74,700	\$ 19,320	8	63,000		56,870	5	(11,700)	S	67.550	1	\$	118,797	5	67,556
Fuller's earth	4	\$	298,800	\$ 77,281	3	262,000	8	347,481		(46,800)		270,200	2	\$	118,797	8	67,55
Ball Clay	.1	\$	74,700	\$ 19,320	5	63,000	\$	86,870	5	(11,700)	\$	67,550	1	\$	118,797	S	67,656
Common Clay	None	ACCUPANT.			Marie S		1000				1000	THE RESERVED TO	SIMOSERBANIES.	WEEK		A PROPERTY OF THE PERSON NAMED IN	
Rock Salt/Sodium Chloride	1	\$	74,700	\$ 19,320	8	63,000		86,870		(11,700)		67,550	1	\$	118,797	\$	67,550
Sypsum	7	5	522,900	\$ 135,241	5	441,000		606,092		(61,900)		472.851	4	\$	118,797	5	67,550
Sodium Carbonate	2.5	\$	99,600	\$ 25,396	8	84,000	8	114,373	\$	(15,600)	S	88,977	2	\$	35,908	S	88,97
Sodium aultara	None					- Landard Control	100	201		The state of the s				ALC: NO.			a little and
Purrice	2	\$	149,400	\$ 38,640	\$	126,000	5	173,741	\$	(23,400)	S	135,100	- 1	\$	118,797	8	67,586
Säsonite	None	1838			PARE		1000		1		1000		100 PERSON - 111	diame.			
Talc and Pyrophylite	None				1000		100		200		1983						
Boron	None	3	The same and		100	The Part of the Control of	\$000	CONTANTO.	200	********	No.	The San		0.5	The second		THE PERSON
Bearites	- 8	5	597,600			504,000		694,962		(93,600)		540,401	- 4	\$	135,526	S	67,550
Tuorspar		3	74,700	\$ 19,320	5	63,000	3	86,870	5	(11,700)	5	67,550	0	5	205,969	5	67,550
eldspar	None	1000			Make		EU.				1000			600			
Diatornite	None			THE RESERVE OF	160		150				1000						
Pedito	None	ALCOHO!		THE RESERVE OF THE PARTY OF THE	1150		抽印		100		10%		DESCRIPTION OF THE PARTY OF THE				
/emiloulite	None	HARRIS	SAME SOURCE	MINISTRAL STREET, SANSON STREET, SAN	100	State of the last			Name of	A STREET, SQUARE,		STATISTICS.	THE RESERVE AND ADDRESS OF	1	THE RESERVE OF STREET	GROOMS.	the same of the same
Alca	None	3	74,700	5 19,320	2	63,000	1.5	88,870	5	(11,700)	5	67,550	-0	S.	135,528	5	67,550
Cyanite		1			-		1		200	12 754 254	1	0.000	F-100	STATE SALES			7.356
otal	332	1.5	4.949.467	\$ 1,570,676	1.5	3.175.833	1.5	4.012.802	1.5	(1.773 633)	1.5	2 442 125	369	5	6.626		

334 -Mgyr

Fugitive Testing: Fugitive Monitoring: Summary of Nationwide Teat	Repeat (every 5	w check for water sprays yrs) M9 for affected facilities	with carryover/other fugitive	Stack Testing: Stack (BH) Monit control	oring:		M5. Omit M9. erty 30-min M		HI M.S.		SCENAR	10:	Stack variation 1	
Summary of Nationwide Fest.	No. new model plants	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost				ence in alized cost	Potential emission reduction,* tpy	Potantial effective	ness (\$/ton)	Difference in cost per plan	t
Crushed & Broken stone	95	- a	14,995	249,600	443,389	5	249,600	8	428,394	311	\$	3,558	8	4,46
Sand & Gravel	STATE OF THE PARTY					\$60	TANKS STA		Suppositional		100	T-10-10-10-10-10-10-10-10-10-10-10-10-10-	100	The state of the same
Construction	208		32,489	540,890	960,677	8	540,800		925,188	241	5	3,858	\$	4,46
Industrial	1		158	2,600	4,619	\$	2,600	\$	4,482	1	\$	7,716	3	4.46
Clays	100000000000000000000000000000000000000			THE REAL PROPERTY.		ZIGHS				EXAMPLE DESIGNATION	PARTY.			
Kaolin	None			K CONTRACTOR	BOOK STORES	260		15530		THE PERSON NAMED IN	11500		100000000	
Firectay	None		The state of the s	CHUCKS DON'T	Manager Manager		三号连进	Piggs	40.445	-		123.835	10	70,41
Bentonite	1		186		70,872				70,415	1		123,635	12	70,41
Fuller's earth	-4	1.00	625		282,286			3	281,661		2	123,835		70,41
Ball Clay	1		156		70,572	13	-		70,410		100	123,000		7 5071
Common Clay	None	AND THE PERSON NAMED IN	SHOW THE REAL PROPERTY.	NAME OF TAXABLE PARTY.	NR. 430	1	NAME OF TAXABLE PARTY.	1000	70.415	THE REAL PROPERTY.		123,835	18	70,41
Rock Selt/Sodium Chloride	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	156		70,572	10	53	2	492.907	1 - 2		123,835		70,41
Gypsum	7		1,093		92,950				92.794			37,446	1.6	92,75
Sodium Carbonate		and the same of th	106	The same of the sa	94,800	1	THE REAL PROPERTY.	Name of	Control of the last	The same of the sa	Name and	The state of the s	Mary Control	
Sodium suffate	None	The second second	312		141,143	14	-	14	140,631	- 1	3	129,635	5	70.41
Pumice	None	and the second second	The second second second second	DOMESTIC OF THE PARTY OF THE PA	A STREET, SALVEY OF THE PARTY O	desco	STATE OF THE PARTY OF	Artists	NAME OF TAXABLE PARTY.	AND REAL PROPERTY.	1000000	PERSONAL PROPERTY.	TO COMPANY	DWG COST
Gisonile	None		CONTRACTOR OF STREET	MUSSINGS	STREET, STREET,	1500		\$1559		A STATE OF STREET	62,555		1000	
Talc and Pyrophyllite Baron	None	STATE OF THE PARTY.		F. S.	HARRIS TO THE	1000		1000		HEROCKE IN P.	53,5717.0		ALC: THE REAL PROPERTY.	
Barite:	19One		1,250		564.572	13		5	563,322	4	5	141,277	3	70,41
Fluorspor		U	156		70.572			18	70,415		8	215,769	5	70,41
Feldspar	None	STREET, STREET	THE RESERVE AND PERSONS ASSESSED.	CONTRACTOR OF THE PARTY OF		1000	PERMIT	NAME OF	T (Bellin)	THE PERSON NAMED IN	100		The same of	
Dietomite	None		A ROBERT STREET	DESIGNATION OF THE PARTY OF THE	Participant of the Control of the Co	100		1230			10000		100000	
Perite	None				Section 1	1923		480		A STATE OF THE PARTY OF THE PAR	DR333		1000000	
Vermiculite	None			0 4 1	DAY DO SHIELD SHOW	No.		100			1930	THE RESERVE	Part of the last	700000000000000000000000000000000000000
Mica	1		156		70,572	- 5		8	70,415	0	.5	141,277	5	70,41
Kyanite	None			and the same			-	100						
Total	332	5 .	\$ 51,850		\$ 3,336,494	15	783,000	15	3,284,636	36	5	8,911	15	9,89
*Potential emission reduction a	ssociated with incre	ased testing and monitoring	(based on potential emission	is from malfunction	ing controls)					334 Mg/y		982 5/M		

Fugitive Testing: Fugitive Monitoring:

Initiat M9 Monthly water flow check for water sprays Repeat (every 5 yrs) M9 for affected facilities with carryo

Stack Testing: Stack (BH) Monitoring: live control

Initial M5. Omit M9. Repeat M5 every 5 yrs. Quarterly 30-min M22.

SCENARIO:

Stack variation 2

Mineral type	No, new model plants	Baneline capital o	ost	Baseline annualized cost		et-revision pital cost	Post-re annuali		Differ		Difference in annualized cost	Potential emission reduction,* tpy	Potentia effective	l cost ness (\$/ton)	Difference in cost per plan	ıt
Crushed & Broken stone	96	5	B15,200	5 328.2	5 5	457,600	5	516,134	\$	(457,500)	\$ 187,85	111	\$	1,692	5	1,95
Sand & Gravel		91		W 10 20	30		100								Contract of the last of the la	
Construction	208	5	1,982,933	\$ 711.2	2 3	991,467	8	1,118,291	8	(991,467)			8	1,692	\$	1,957
Industrial	t	5	9,533	5 3,4	10 S	4,767	5	5,378	5	(4,767)	\$ 1,95	†	5	3,384	\$	1,957
Rayer	The same of the sa	Sec.		Section 19			No.		1		4	Contract of the last of the la	AGIN .		-	
Kacin	None	2150			100		3161					TO SEE STATE OF	10000			
Firectay	None	100		MAIN COLUMN TO MICH	2 10		1500		HAS		North Read Street	TO THE REAL PROPERTY.				
Bentonite	1	5	74,700	\$ 19.3	D 5	63 000	5	20,590	3	(11,700)	\$ 1,27	1	5	2,233	\$	1,270
Fuller's earth	4	5	298,800	\$ 77,2	1 3	252,000	5	82,360	S	(46,800)	\$ 5,08	2	S	2,233	\$	1,270
Ball Clay	1	5	74,700	\$ 19,3	0 5	63.000	5	20,590	5	(11,700)	\$ 1,27	1	5	2,233	\$	1,270
Common Clay	None	SHADES			100		2000000		ALLESS.	ESSENIE .	ATTO STATE OF THE PARTY OF THE				ACCOUNT OF THE	
Rock Salt/Sodium Chloride	1	1	74,700	5 19,3	0 5	63,000	5	20,590	8	(11,700)	\$ 1,27	1	8	2,233	\$	1,270
Gypaum	7	5	522,900	\$ 135,2	1 5	441.000	5	144,131	5	(81,900)	\$ 8,88	4	5	2,233	\$	1,270
Sodium Carbonate	1	\$	99,600	\$ 25,3	6 8	84,000	9	27,092	\$	(15,600)	\$ 1,69	2	8	685	\$	1,697
Sodium sulfate	None				200		100		1392	1 1000000000000000000000000000000000000	CHAIR P.		WOR HOT		SHIP ST	
Pumice	2	5	149,400	\$ 38,64	0 5	126,000	3	41,180	5	(23,400)	\$ 2,54	1	\$	2,233	-\$	1,270
allsonite	None	SIMORE		THE RESERVE OF THE PERSON NAMED IN	-		THE REAL PROPERTY.		100		COLUMN TWO	THE RESERVE THE PARTY OF THE PA	The same		NO CONTRACT	
Falc and Pyrophylite	None	7590000									11123 10 2 510	THE REAL PROPERTY.				
Boron	None	100			100				100		COL 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
Barito	8	5	597,600	\$ 154,5		504,000	8	164,721	\$	(93,600)	\$ 10,15		\$	2,548	\$	1,270
Fluorspan	1	5	74,700	\$ 19,3	0 8	63,000	8	20,590	8	(11,700)	\$ 1,27	0	5	3,891	\$	1,270
Feldspar	None	2000			67 (5)				V-		STATE OF THE PARTY	THE RESERVE	F-0.00			
Distornia	None	-3355			200				\$60U.							
Parito	None	2753 bit		STATE OF THE PARTY OF THE PARTY.	A 100				or stime		- reconstant	A STATE OF THE PARTY OF				
/armiculite	None	the body			98						NAME OF TAXABLE PARTY.	STORY TO STORY	Details.		SCHOOL STATE	
Micia	1	\$	74,700	\$ 19,3	0 5	63,000	3	20,590	5	(11,700)	5 1,27	0	\$	2,548	\$	1,270
Cyanite	None	NO.			2/1		1925		1111	The state of the s	1000	1 THE R. P. LEWIS CO., LANSING, MICH.	STATE OF THE PARTY OF		CAMPING TO SERVICE	
Total	332	5	4,949,467	\$ 1,570,6	5 5	3.175.833	5	2,202,237	8	(1,773,633)	\$ 631.56	369	S	1,713	5	1,902

334 Mg/yr

8178 140 SM2

Total	335		898,13	\$ 2,515,000	018,689,1 8	\$ 52	00	58,119,1 8	90E	Z81'S S	\$	979
Реліте Уетноцівь Міся Куэпію	BUOM PHON		901	000,53	50'318	\$	00	691,05 \$	0	PSP'OP \$	z \$	30,162
Bonko Bonko Feldspar Feldsbarko	F F BROM		985, r 888			9 S	00	891,05 8	0	607,10 8		30,162 20,163
entrose Purmose Gilsonite Prophylitte pond	S ONDM ONDM SHOW		212	000 984	863,0b	zi 5	00	900 OP \$		099/95 S		91.05
Common Clay System Sodium Carbonale Sodium Carbonale	E L L		991 650,1 881	441,000	142,236	2 44	00	999'92 \$ 291'191 \$ 091'02 \$	2	\$ 19½°01 \$ 39°080 \$ 38°080	2 5	20.162 20.162 20.163
Knotin Functiny Follows cards Follows cards	anow r h		961 659 861	282,000	TTE, 18	\$ 50	00	691'02 \$ 699'08 \$ \$ \$	1 5	099/96 \$ 099/96 \$ 099/96 \$	2 3	50 165 50 165 50 165
Kunda Sajas	enold	THE REAL PROPERTY.	Law Contain	STATE OF			380					
Sund & Stavel Construction Industrial	1 208		32,489		758,082 978,4		00	\$ 628,188 \$	Sei	888.6 8 811,1 8	\$ \$	294'V
nitseT ebiwnodki is wsmrui Aneral lype Aneral aneral & burleur	No. new model plants 96	Baseline capital cost	labo bezileunne 14,955	Post-revision post-revision		Difference in			Potentiol emission reduction,* tpy	Potentini cost effectivaness (\$/lon) 5 3,856	Difference in annualized coat per plant \$	791° P

Stack variation 2

SCENARIO

SSM nim 36-min M22.

Stack (BH) Monitoring:

Repetal (every 5 yrs) M9 for affected facilities w Monthly water flow check for affected facilities w

:gnites Testing:

Fugitive Testing: Fugitive Monitoring:

Stack Testing: Stack (BH) Monitoring: control

Initial M5. Cmit M9. Repeat M5 every 5 yrs for stacks >>2500 actim. Quarterly 30-min M22. SCENARIO:

Mineral type	No new model plants	Baseline capital c		Baseline annualized cost	Post-r	revision Locat		revision slized cost		rence in al cost	Difference in annualized co		Potential emission reduction,* tpy	Potentia effective	l cost ness (\$/ton)	Difference cost per p	in annualized
Crushed & Broken stone	96	5	915,200	\$ 328.275	5	457,600	\$	516,134	\$	(457,600)	5 187	.860	111	5	1,692	8	1,967
Sand & Gravel	1000	1			22air				325				7.00	V BUILDING		200 01105	
Construction	208	5	1,982,933	\$ 711,262	5	991,467	\$	1,118,291	S	(991,467)	\$ 407	.029	241	\$	1,692	5	1,957
Indicatrial	1	8	9,533	5 3,420	8	4,767	5	5,376	5	(4,767)	5 1	957	t	5	3,384	5	1,957
Skryes	The state of the s	Contract Con			1		-		The state of		1000		NAME OF TAXABLE	X425			
Kaolin	None	THE REAL PROPERTY.					1000				100000			CAPTON			
Fireclay	None	1000000					DE STATE		800		35 35 100		Contract of the last of the la	No.			
Sentonila	1 1	5	74,700		\$	63,000		20,590	5	(11,790)		.270	1	5	2.233	5	1,270
Fuller's earth	-4	5	298,500	5 77,281	5	252,000	5	82,360	5	(46,800)		080	2	5	2,233 2,233	5	1,270
Ball Clay	1	5	74,700	5 19,320	\$	63,000	5	20,690	5	(11,700)	8 1	270	1	\$	2.233	5	1,270
Common Clay	None	0.00			1000						Tan United			NEXT DESIGNATION OF THE PERSON			
Rock Salt/Sodium Chloride		\$	74,700		5	63,000		20,590	5	(11,700)		.270	1	5	2,233	5	1,270
Gypsum	7	5	522,900		5	441,000		144,131	\$	(61,900)		888,	4	\$	2,233	5	1,270
Sodium Carbonate	3	\$	99,500	\$ 25,396	8	84,000	\$	27,092	5	(15,600)	\$ 1	,697	2	5	685	5	1,697
Sodium sulfate	None				1		100		ED.					30000		1000	
Pumice	2	5	149,400	\$ 38,640	5	126,000	\$	41,180	\$	(23,400)	\$ 2	540	1	\$	2,233	\$	1,270
Glisonite	None	HATTER AND A			-		10720				THE PERSON NAMED IN		CONTRACTOR OF THE PARTY OF THE	HISTON .			
Talc and Pyrophyllite	None	# 000		THE REPORT OF THE PARTY.	1 58		10000				THE REAL PROPERTY.						
Baron	None		- Constitution and	The state of the s	-	-	1000							VES			
Barile	8	3	597,500			504,000		164,721	5	(93,600)		,159	4	5	2,546	\$	1,270
Fluorepar	1	5	74,700	5 19,320	5	63,000	\$	20,590	5	(11,700)	5 1	270	0	8	3,891	5	1,270
Feldspar	None			Company of the Compan			5534				THE SECTION						
Diatomite	None	Marie Co		The state of the s	2000		Three						CONTRACTOR OF THE PARTY OF THE				
Perlite	None	***		LEISURGE CONTRACTOR	DOM:		1				ATTOM NOT THE						
Vermiculite	None	SHED		THE RESERVE THE PARTY NAMED IN	No contra		Total Section	THE RAIL	HIE-		No Salah		CHARLES AND ASSESSED.	Densit.			ALC: UNKNOWN
Mica		5	74,700	\$ 19,320	5	63,000	\$	20.590	5	(11,700)	\$ 1	270	0	5	2,548	\$	1,270
Kyanite	None	CHILDRE	4-14-1-1-1-1-1-1	The same of the sa	20	-	1	THE PARTY NAMED IN	JESS	-		100		Store St	1-8000	E.	
fotal	332	5	4,949,467	\$ 1,570,676	1.5	3,175,833	5	2,202,237	\$	(1,773,633)	5 631	560	369	S	1,713	\$	1,902

WIS	JA/BW
9/1	334

					960'109'1 \$	000'192'1 5			868,18 \$	endelines has politate bas	335	Total emission reduction a
281	5 1	P 344	5	696	860:09: 2	000 the 1 2	AMO COO + P	000 100 1	659.19		BUON	Кувенке
6,207	21	035,01		0	102.0 8	000'94 \$	636.8	000,44	991		4	ROW
LUG W	-	WOF WA	NAME OF TAXABLE	ALTHOUGH PROCESSES	THE RESERVE TO SHARE	Contract of the Contract of th	CONTRACTOR STATE	NAME OF TAXABLE PARTY.		BOA BANBON	Mone	Vermicuite
			UL US M		2 10 15 15 10				A CHARLEST AND A		anoM	ethat
					E PHONE DESIGNATION		525, ST 1155	200			GHOM	Distornia
			THE STATE OF								SHOW	Enichter F
8 50)	\$ 1	S2'149	\$	0	102.8 8	600'1/1 \$	696,8	14,000	120		L.	18qanoulfi
8,207	9 1	994,81	\$	t	T88,88 E	\$ 115,000	206'99	112,000	1,250		9	Berke
	ATTENDED OF		100000			1003					Mone	Tale and Pyrophylite
	15-5-5				MASSALLE MA	THE RESERVE					anoid anoid	Gleonile Title and Pomorbida
	1000		1	are the second	S CONTRACT OF THE	Total Control	CONTRACTOR OF STREET	Managara -		THE OWNER OF THE OWNER,	your 2	eginose)
205,8	\$	CEA. P.	5	1	919'91 S	\$ 26,000	16,727	38,000	315	The second second	aupy	Sodium suffide
- CALLEDON			ERE			and a second	**************************************	000,18	951	STATE OF THE PERSON NAMED IN		Sodium Carbonate
999'9Z		195,01	5	2		000,68 &	28,822	000,86	680,1		,	gypsenni
10Z,8		EEA. Þ.T			702.8 8 029,12 \$	000'96 \$	636,8 546,88	14,000	991		ĩ.	Rock Self/Sodium Chionde
105,8	21	CCP, br	3	THE RESERVE OF THE PERSON NAMED IN	206 0 3	100074	696.1	000 77	Charles and the same of the last		BUOM	Common Clay
102.8	- 1	EE4,41	-	The real Property lies	202,8 \$	000'91 \$	696,8	000'95	991		1	Ball Clay
705,8 505 a		SSA, p.r		7	928,4E &	000'99 \$	699'6E	000'99	929	\$0.10 I	b	Fuller's earth
705,8		864,41			702,8 \$	000,51 8	696,8	14,000	951		1	Dentonito
206 E		GOP F.	NAME OF TAXABLE PARTY.	ARREST DESCRIPTION	THE PERSON NAMED IN	AND DESCRIPTION OF THE PARTY OF	NAME OF TAXABLE PARTY.	CHOCKET THE SECOND		BOURNING OF SELECT	auon	Fiveday
	200000					THE STREET					MON	nitoeX
	-					The same of the			Silver and the second			SAFEC
4,462	8	917.7		1	\$ 4,462	2,600	619.5	2,600	991		1	laideubrif
7962	\$	3,656	9	Sel	\$ 928,188	2 240,800	758.088	008,048	35,489	*	S0S	Construction
	-		1 - 100		Thomas and	Miles and the second	Paragonia -	FEMALES	Total or and the second	CHARLES TO SECOND	-	Carched & Broken stone Sand & Gravel
Z91'V		868.€		111	166,855 8	\$ \$49,600	485,655	009,665	985'v1 jedo pezijenijus	capital cost	96 blants	Mineral type
Just	cost per p		effectivens					Capital cost		annesca teopletices	lebom wen .oM	and leveriff

initiel M2: Coult M3. Gebest M3 every 5 yrs for stacks >=2500 solm.

Fugitive Testing: Fugitive Monitoring:

Inital M9

Monthly water flow check for water sprays

Stack Testing: Stack (BH) Monitoring Initial M6 Omit M9. No repeat tests. Monthly 30-min M22.

SCENARIO:

Stack variation 5

Mineral type	No. new model	Baseline capital cost	www.dieseld	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Difference in capital cost	Difference in ennualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$/ton)	Difference in annualized cost per plant
Crushed & Broken stone	96	S	915,200	\$ 328.276	\$ 457,600	\$ 516,134	\$ (457,800)	\$ 187,860	111	\$ 1,692	\$ 1,957
Sand & Graves	10000000000000000000000000000000000000	W. San				A STATE OF THE PARTY OF THE PAR	A STATE OF THE STA				DESTRUCTION OF THE PARTY OF
Construction	208	5	1,982,993				\$ (991,467)			\$ 1,692	\$ 1,957
Irichistrial	7	5	9,533	\$ 3,420	\$ 4,767	\$ 5,376	\$ (4,767)	\$ 1,967	1	5 3,384	\$ 1,957
Claye:		A STATE OF			THE RESERVE	and the later of t					
Kaolin	None	100		A STATE OF THE PARTY OF THE PAR	The second second		EVO 28 AND THE	TO SERVICE TO THE			
Fireday	None	CONTRACTOR OF THE PARTY OF THE		STATE OF THE PARTY NAMED IN	THE RESIDENCE	The second second	STATE OF STREET	PER STATES		CONTRACTOR OF STREET	
Bentonitu		\$	74,700	\$ 19,320	\$ 63,000	5 28,860	5 (11,700)			\$ 16,778	B 9,540
Fuller's conth	4	5	298,800		\$ 252,000					\$ 16.778	\$ 9,540
Ball Clay		3	74,700	\$ 19,320	\$ 63,000	\$ 28,860	\$ (11,700)	\$ 9,540	A STATE OF THE PARTY OF THE PAR	\$ 16,778	\$ 9,540
Common Clay	None	DEWAY THE	74.700	\$ 19,320	\$ 63,000	\$ 28.860	ELIVERS CAN TOO	The second second	THE POST OF THE PARTY OF	\$ 16.778	5 9,540
Rock Salt/Sodium Chlorida	2.0	3	522,900							\$ 16,778	5 9,540 5 9,540
3ypaum Sodium Carbonate	1 4	3	99,600							\$ 10,776	5 12,724
odum sufate	None	PERMIT	99,000	3 23,395	2 04,000	3 34,119	\$ (15,000)	12,729	THE RESERVE OF THE PARTY OF THE	8 D, 1588	3 12,769
umide	2	A STATE OF THE PARTY OF THE PAR	149,400	\$ 38,640	8 126,000	8 57,721	\$ (23,400)	\$ 19,080	The same of the same of	\$ 16,778	\$ 9,540
leonite	None	ACCRESSION OF	W-2006500000		TANKS SECTION	Street on Particular	A 500, 400	TO TO THE PARTY	The state of the s	10,770	NAME OF TAXABLE PARTY.
aic and Pyrophyllite	None	The state of			CONTRACTOR OF THE PARTY OF THE	STREET, STREET		A STATE OF	The state of the state of		
foron	None	THE COLUMN			VALUE IN	A COUNTY OF		THE RESERVE OF THE PARTY OF THE	THE REAL PROPERTY.		
Borilo	8	3	597,600	\$ 154.562	\$ 504,000	\$ 230,683	\$ (93,600)	\$ 76,321	4	\$ 19,141	\$ 9,540
lucesper	1 -	\$	74,700	\$ 19,320	5 63.000					\$ 29,233	5 9,540
eldepar	None	DOM: IT IS		College Colleg	1/11/200	CONTRACTOR OF THE PARTY OF THE		No. of Contract	DESCRIPTION OF THE PARTY OF THE	THE RESERVE THE PARTY OF	STREET, THE PARTY OF THE PARTY
latomite	None	learn and			HOLD STREET			III AND THE REAL PROPERTY.	S51000000000000000000000000000000000000	SECTION AND LINES.	
Perito	None	The same of the sa		The state of the s	to obtain	HERON MARKET	The second	Ministration of the last	AND DESCRIPTION OF THE PARTY OF	No - No contract	AND DESCRIPTION OF
fermiculite.	None				1	DEPOSITE OF THE PARTY OF THE PA		Control of the last	THE THE PARTY OF		
fica	1	\$	74,700	\$ 19,320	\$ 63,000	5 26,880	\$ (11,700)	\$ 9,540	0	\$ 19,141	\$ 9,540
Kyanite	None	Carlotte Common	-		and the state of	and was a second					
otel	332	15	4.949.467	\$ 1,570,676	\$ 3.175.833	8 2.428.290	\$ (1,773,633)	\$ 857.614	369	\$ 2.327	\$ 2.583

1939 33C 3 4,945,497 (\$ 1,070,879 (\$ 3,170,853 (\$ Potential emission metudian associated with increased testing and maniforing (based on potential emissions from mailtanctioning control

334 Mg/yr

Initial M9

Monthly water flow check for water sprays

Monthly water flow check for water sprays

Repeat (every 5 ym) M9 for affected facilities with carryoveriother Jugitive control

Monitoring, Reporting, and Recordseeping Costs for Subpart OOO (Year Se)

No. new model

Baseline

Capital cost

Capital cost

14,995

248,000 SCENARIO: Potential emission Potential cost Difference in a reduction," tpy effectiveness (\$\text{\$\text{ton}\$}\) cost per plant 111 5 3.858 \$ rost-revision Difference in annualized cost capital cost annualized cost \$ 443,389 \$ 249,600 \$ 428,394 4,462 4,462 4,462 241 S 3,868 \$ 7,716 \$ 928,188 4,482 540,800 2,600 960,677 4,619 32,489 156 540,800 S 2,600 S 12,405 12,405 12,406 156 525 156 12,562 \$ 50,246 \$ 12,562 \$ 12,405 49,521 12,405 21,817 \$ 21,817 \$ 21,817 \$. . 1 5 2 5 1 5 1 5 4 5 2 5 21,817 5 21,817 5 6,675 5 12 405 12 405 18,540 12,562 8 87,931 \$ 16,697 \$ 156 1,093 156 21,817 \$ 12,405 24,811 312 25,123 8 1,250 166 99,243 12,405 24,889 \$ 38,013 \$ 12,405 12.405 12,562 4,613 \$ s 51,858 \$ 9,121 334 Mg/yr 5084 S/Mg

Fugitive Testing: Fugitive Manitoring:

Stack Testing: Stack (BH) Monitoring: control

Initial M5 and M9. Repeat M9 for all. Repeat M5 every 5 yra for stacks >=2500 actin. Semiannual 30-min M22. SCEMARIO:

Stack variation 6

Mineral type	No. new model plants	Baseline capital co		Baseline annualized cost	capita	revision d cost	Post-n			al cost	annu	alized cost	Potential emission reduction,* tpy	Potentia affective	mess (\$/ton)	cost par p	
Crushed & Broken stone	96	5	915,200	5 328,275	\$	457,600	5	516,134	5	(457,600)	8	187,860	111	\$.	1,692	5	1,95
Band & Gravel		A COLO			22500		1000		3				The same of the sa			- Sec. (2000)	
Canatruction	208	5	1,962,933	\$ 711,262	5	991,467	\$	1,118,291	\$	(991,467)	3	407,029	241	\$:	1,692	5	1,95
Industrial	1	\$	9,533	\$ 3,420	8	4,767	5	5,376	5	(4,767)	S	1,957		5	3,364	5	1,95
Savec		District of the last			1000		1000		Contract of the last							1000	
Kaoin	None				1777		750										
Firectoy	None	BOOK FAC			4-00		2550		BC356								
Bentonite	1	5	74,700	\$ 19,320	5	74,700	\$	34.827	8		8	15,507	1	5	27,271	8	15,50
Fuller's earth	4	5	298,800	\$ 77,281	5	298,800		139,307	5		\$	62,026	2	\$	27,271	5	15,50
Boll Clay	1	5	74,700	\$ 19,320	5	74,700		34,827	5		8	15,507	1	4	27,271	8	15,50
Common Clay	None	THE REAL PROPERTY.	NAME OF STREET	SHARESON BUTCHERSON WAS AND AND AND	200000	DESCRIPTION OF THE PARTY OF THE	201703763	ALTERNATION OF THE PARTY OF THE	HEREN	NAME OF TAXABLE PARTY.	INCOME	STATISTICS.	SELECTION OF REAL PROPERTY.	EDUISOR	AND DESCRIPTIONS	NAME OF TAXABLE PARTY.	BOARD BEE
ock Sall/Sodium Chloride	1	\$	74,700	\$ 19,320	5	74,700	5	34,827	5		5	15,507	1	5	27,271	5	15,50
ypsum	7	\$	522,900	5 135,241	8	522,900	5	243.767	8		5	108,546	4	\$	27,271	5	15,50
lodium Carbonate	1 1	5	99,600	\$ 25,398	8	99,600	8	45,492	8	100	8	20,098	2		8,109	S	20,09
kodium sulfate	None	1000000	SCHOOL SECTION	CONTRACTOR OF STREET	diam'r.	NAME OF TAXABLE PARTY.	No. of Lot	CARLES IN CO.	Name of	AL DESCRIPTION OF THE PERSON O	Digen.	DESCRIPTION OF THE	CHARLES TAXABLE IN	NEW WORLD	200000000000000000000000000000000000000	HERE WAY	
tumice	2	5	149,400	\$ 36,640	5	149,400	5.	69,654	5		8	31,013	1	5	27,271	\$	15,50
Sagnite	None	diameter .	- MANUSCONE	AND DESCRIPTION OF THE PARTY OF	Section 1	CONTRACTOR OF THE PARTY OF THE	SECOND	- Middle (1)	notore	-	-	and the state of t	Name and Address of the Owner, where the Owner, which is the Owner, which is the Owner, where the Owner, which is the Owner,	AND DESCRIPTIONS		Statute of the	Telephone and the second
alc and Pyrophylike	None	24			133					3715			Carrie City Carried				
eron	None	羅			120		E										
arile	8	•	597,600	\$ 154,562	1 4	597,600		278,614	*			124.053			31,111		15,50
worspar	7		74.700	5 19,320		74,700		34,827				15,507			47.516		15.50
eldsper	None	SHIP TO SHIP	Company of the Company	THE REAL PROPERTY AND ADDRESS OF THE PARTY AND	Name of Street	74,700	and the last	SH,OE'	in the	NAME OF TAXABLE PARTY.	-	13,007	NAME AND POST OFFICE ADDRESS OF THE PARTY OF	Name of Street	97,210	all minimum plans	7,0,00
latomite	None	ALC: NO.			100		102:00										
erite	None	200 15			B120.00		Me										
ermiculite	None	PIT STATE			1000		10112										
Gca .	mone	4	74,700	\$ 19,320	4	74.700		34.827		and the same of		15.507	0	-	31,111		15.50
yenite	None	of charge	24,700	4 19,320	Name of	74,700	Section 1	04,027	100000	-	200	13,507		CHISTER	21,111	A STATE OF THE PARTY OF THE PAR	13,00
otal	332	and the same of	4 949 467	\$ 1,570,676	100000	3,495,633	1000	2.590,789	and the same	(1,453,833)		1.020.113	369	- 17	2,768		3.07

334 Mg/yr

Fugitive Testing:

Initial M9

M9 by water flow check for water sprays Stack Testing: Stack (BH) Monitorin Initial M5 and M9. Repeat M9 for all. Repeat M5 every 5 yrs for stacks >=2500 scfm, Semiannual 30-min M22, SCENARIO:

Stack variation 6

Mineral type	No. new model	Sessine capital cost	ng Costs for Subpart 000 Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Differe			ence in elizad cost	Potential emission reduction,* tpy	Potential co effectivene	ss (\$/ton)	Difference in cost per plar	it.
Crushed & Broken stone	96	Compress Court	14,999	249,600	443,389	5	249,600	\$	426,394	111	\$	3,856	5	4,462
Sand & Gravel		Name of Street or other	0.000	Moderation	A STATE OF THE PARTY OF THE PAR	1000		Esta .		100			No. of the last	- Harry
Construction	208	No. of the last of	32,489	540,800	960,677	S	540,800	5	928,186	241	S	3,858		4,462
Industrial	1		156	2.500	4,619		2,600	5	4,452	1	5	7,716	8	4,460
		NAME OF TAXABLE PARTY.	CONTRACTOR OF THE PARTY OF	000000000000000000000000000000000000000		1000	535500	1000					THE PERSON	
Clays: Kaofin	None					200		112					EC0/32203	
Finiciay	None	The second second		1		1899		HES					100	
Bentonite	1		156	14,000	19,089	5	14,000	15	18,933	1	8	33,296	5	18,930
Fuller's earth			625	56,000		\$	55,000	5	75,732	2	5	33,296	5	18,933
			156	14,000	19.089	5	14,000	8	18,933	1	5	33,296	8	18,933
Ball Clay	None	CONTRACTOR STATES	A CONTRACTOR OF THE PARTY OF TH	4	THE REAL PROPERTY.	A COLUMN	1	SPACE.	(A) (A)	CONTROL OF	100000			
Common Clay	None		156	14,000	19.089		14,000	1.5	18,933	1	8	33,296	5	18,933
Rock Sall/Sodium Chloride	1 2		1.093				96,000		132.531	4	8	33.296	5	18,933
Gypsum	100		156	84,000		8	84,000		40.602	2	5	16.385	5	40,600
Sodium Carbonate	1	and the local distriction of the local distric	430	04,000	40,100	Name of Street	NAME OF TAXABLE PARTY.	Richard	THE RESERVE OF THE PARTY OF THE	THE RESERVE THE PARTY OF THE PA	ALL WALLES		The same of	
Sodium sulfate	None		312	28,000	38,178	1.6	28,000	8	37,866	1	5	33,296	S	18,933
Pumice	- 6	AND DESCRIPTION OF THE PARTY OF	512	20,000	AND DESCRIPTION OF THE PARTY OF	20,000	THE REAL PROPERTY.	1206000	THE STREET	THE PARTY NAMED IN COLUMN	STEEL PROPERTY.	ENGINEED DE	NOT THE OWNER.	
Gisanila	None			THE REAL PROPERTY.	PARTY STATE OF THE PARTY OF THE	1000		1000		The State of the S	1216		SELECTION OF	
Talc and Pyrophylite	None			100000000000000000000000000000000000000	TO SHARE STORY	1900		1833			1000		1	
Boron	None	The second second	1,250	112,000	152,714	15	112,000	8	151,464	4	S	37,986	8	18,93
Barite	8		166				14,000		18,933	0	8	58,015		18,93
Fluorspat		Name and Address of the Owner, where the Owner, which is the Owner, where the Owner, which is the Owner, where the Owner, which is the Ow	100	14,000	(8,000	in the	14,000	HOUSE	10,000	CANADA CONTRACTOR OF THE PARTY	STREET, SQUARE,		A COLUMN TO SERVICE AND ADDRESS OF THE PARTY	
Feldspar	None	The state of the s	H SOME CONTRACTOR	Marine Santa	12000	1000		1550		E35500000000000000000000000000000000000	(F)(2/2/17)		THE RESERVE	
Distomite	None		TO THE RESERVE	RECEIPTED AND ADDRESS.	PERSONAL SERVICE	355.0		1000		Marin Control	-		100000000	
Perlite	None			100000000000000000000000000000000000000	AND DESCRIPTION	Jun Sin		100		The second second			THE PERSON	
Vermiculite	None	CAROLING STORY	STATE OF THE PERSON.	** ***	19,089	\$	14,000	4	18,933	0	2	37,986	8	18,93
Mice	1		198	14,000	19,089	and the same	14,000	Times.	10,200	THE RESERVE THE PERSON NAMED IN	DESCRIPTION OF THE PARTY OF THE	PAGE DE PERSON	A STATE OF THE PARTY OF THE PAR	Carlotte Lawrence
Kyanite	None									360		5,138		5,70

Total 332 \$ 51,899 \$ 1,891,000 \$

Potential emission reduction associated with increased testing and maniforing (based on potential emissions from martunotioning control

334 Mg/yr 5664 S/Mg

Initial M9 Monthly water flow check for water sprays. Annual M9 for all affected facilities

Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO

Mineral type	No. new model plants	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost		Difference in annualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$/ton)	Difference in annualized cost per plant
Crushed & Broken stone	96	\$ 915,200	\$ 328,275	\$ 457,600	\$ 1,141,680	\$ (457,600)	\$ 813,405	111	\$ 7,325	\$ 8,47
Sand & Gravet	TO STREET THE PARTY OF THE PART	The same of the same of		State of the later	Lawrence of the law of	W. W. W.	a la constant		Water Control	The state of the s
Construction	208	\$ 1,982,933	\$ 711,262	\$ 991,457	\$ 2,473,639			241	\$ 7,325	S 8,47
Industrial	3	\$ 9,533	5 3,420	\$ 4,767	5 11,892	5 (4,767)	5 8,473	1	\$ 14,651	\$ 6,47
Zays				Chertal Land		ALCO DE CONTRACTOR	The state of the state of	May Donated In		
Kacin	None		THE RESERVE OF THE PARTY OF THE	PERSONAL PROPERTY.				and the state of t	THE RESERVE OF THE PERSON NAMED IN	ALCOHOL: NAME OF THE OWNER, THE O
Fireday	None		NAME OF THE OWNER OWNER OF THE OWNER			CONTRACTOR OF THE PARTY OF THE		THE REAL PROPERTY.	A COLUMN TO A COLU	
Bentonite		\$ 74,700		\$ 63,000				1	\$ 2,233	3 1,27
Fullar's earth	- 4	\$ 298,800	\$ 77,281	\$ 252,000			\$ 5,090	2	5 2,235	\$ 1,27
Ball Clay		5 74,700	\$ 19,320	\$ 63,000	\$ 20,590	\$ (11,700)	\$ 1,270	1 1	\$ 2,233	\$ 1,270
Common Clay	None	District Control of the Control of t		STREET,		With the same of t	The second living	CONTRACTOR OF THE STREET		
Rock Sall/Sodium Chloride		5 74,700	5 19,320	\$ 63,000	\$ 20,590	\$ (\$1,700)	\$ 1,270	1	\$ 2,233	5 1,270
Sypsum.	7	\$ 522,900	5 135,241	\$ 441,000	\$ 144,131	\$ (81,900)	\$ 8,889	4	S 2,233	\$ 1,270
Sodium Carbonate	1	\$ 99,600	\$ 25,396	\$ 84,000				2	\$ 685	\$ 1,69
Sodium sulfate	None		Control of the last of the las	S1-07-12-12-12-12-12-12-12-12-12-12-12-12-12-			THE RESERVE OF THE PERSON NAMED IN	BLISTON SEE	Wargashin	
Pumice	2	\$ 149,400	5 38,640	\$ 126,000	\$ 41,180	\$ (23,400)	\$ 2,540	1	\$ 2,233	5 1,27
Sisonite	None	No. of the second second	THE PERSON NAMED IN COLUMN TWO	THE RESERVE OF THE PARTY OF THE	The Street Street	total North Name of Street, St	STORES THE PERSON	The same of the sa	The second secon	The state of the s
Talc and Pyrophylise	None		STATE OF THE PARTY.	The state of the s			The second second			The state of the s
Boron	None			Danie Alice				THE RESERVE		Control of the last of the las
Barito	8	\$ 597,600	5 154,582	\$ 504,000	\$ 164,721	\$ (93,600)	\$ 10,159	4	\$ 2,548	\$ 1,270
Tuorsper	1	5 74,700		\$ 63,000			\$ 1,270	0	\$ 3,891	\$ 1,27
eldspar	None	BUILDING TO SERVICE STATE	THE RESERVE THE PERSON NAMED IN	THE RESERVE OF THE PARTY OF	THE RESERVE OF THE PARTY OF	No. of Concession, Name of Street, or other Designation, Name of Street, or other Designation, Name of Street,	Control of the latest	STREET, SQUARE,	The state of the s	THE RESERVE OF THE PERSON
listomite	None		TOTAL COLUMN TO SERVICE STATE OF THE PARTY O	BENNE CONTRACT		Section 1	MINISTER STATE	The second second	AND DESCRIPTION OF THE PARTY.	The second second
Peritta	None			SHADE DE FEI					HASSER MISSIEVE	
fermiculite	None		All the second second	A STATE OF THE PARTY OF						The state of the s
Mica	1	\$ 74,700	\$ 19,320	\$ 63,000	\$ 20,590	\$ (11,700)	\$ 1.270	0	\$ 2,548	\$ 1,270
Kyanite	None	New York of the Party of the Pa	THE PERSON NAMED IN COLUMN TWO IS NOT THE	90,000	60,000	113,700	THE RESERVE OF THE PARTY OF THE	AND DESCRIPTION OF THE PERSON	DISTRICT OF THE PARTY OF THE PA	A CONTRACTOR OF STREET

334 Mg/yr

Crisine de Brown storie 10 10 10 10 10 10 10 10 10 1	Fugitive Manitaring:	Annual M9 for all	w check for water sprays affected facilities		Stack (BH) Mon	toring:	Quarterly 30	0-min M	122			SCENARIO		Fugitive variation	•
Custor of Services		No. new model	Baxeline	Baseline	Post-revision								ss (Siton)		
Sand S. Carsavell 208 - 32,469 - 2,034,981 5 - 5,2004,461 241 5 8,340 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 5 9,605 1 5 15,600 1 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600 1 15,600					Tangerini areas		\$		\$	928,059	111	8	8,340	\$	9,64
Construction 208		A CONTRACTOR OF THE PARTY OF TH	100000000000000000000000000000000000000		1					The world		100		Marine Spinster	F-100 PM
Industrie 1	Construction	208			1000		5		5			5			
Mone None	Industrial	1		156	1 4	9,803	5		8	9,646	1	8	16,680	5	9.64
Finally Rentonine 1	Cloves	THE STREET							4127		PERSONAL PROPERTY.			THE RESERVED	
Bentonine 1	Kaolin	None		STATE OF THE PARTY	THE RESERVE	ESPECIAL STREET			HES		STATE OF THE PARTY	5-55555		(A) (A) (C) (A)	
Bertloride	Fireclay	None		HERE REPORTED IN	THE PERSON NAMED IN	THE REAL PROPERTY.	AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO THE PERSO		4990	20000E000	And in case of the last of the	-	7.015		4.19
Fuller's search	Bentonite	1	1	156			5		\$						
Des Clay Common Clay Com	Fuller's earth	4		625		17,165	5		3	16,540	2	3			
Nock SalVSodium Chloride Signsum 1 4,291 \$ \$ \$ 4,133 \$ 1 \$ 5 7,272 \$ \$ 4,13 Signsum 7 - 1,033 - 30,039 \$ \$ \$ \$ \$ 2,264 \$ 4 \$ \$ 7,272 \$ \$ 4,13 Rodsum Cardonals 1 - 156 - 5,670 \$ \$ \$ 5,513 \$ 2 \$ \$ 2,256 \$ \$ 5,55 Sodium Little None 2 Purnice 2 - 312 - 8,583 \$ \$ \$ 5,270 \$ 1 \$ \$ 7,272 \$ \$ 4,11 Clooride None None Politorial None None Boxon None - 1,280 - 34,331 \$ \$ \$ \$ 30,081 \$ 4 \$ \$ 8,266 \$ \$ 4,15 Full Colorial 8 - 1,280 - 34,331 \$ \$ \$ \$ 3,081 \$ 4 \$ \$ 8,266 \$ \$ 4,15 Full Colorial None Full Col	Ball Clay	1		166		4,291	5	-	15	4,535	-	2	1,212	3	4,10
1,000 1,00							The same of	DOM:	Access		AND CONTRACTOR		Y 579		A 12
Signature 1 1988 - 1989 -		1			1			- 5	2						4 1 9
Sodum Lardendaria Purmical Calcardia Purmical Calca		7	0.00		1			15	1 2	28,946				2	5.51
Purvisc 2				196	-	5,679	13	-	diam.	0,010	A CONTRACTOR OF THE PARTY OF TH	The same of the same of	2,220	Activities and the same	2,0
Currical Calcinotion Cal			STREET, SQUARE, STREET, SQUARE,	A CONTRACTOR OF THE PARTY OF TH	THE REAL PROPERTY.	Maria Carallana	1	-	1	8.775			7.979	Te.	4.19
Toto and Pyrophytitle None Boron None Startin 1				312	-	8,563	Contractorios	and the last	-	8,270	A STREET, SQUARE, SQUA	and the same	7,874	Contract States	THE REAL PROPERTY.
Boron Nome							PRESI		E SOL		THE STORES	120000			
Bartio 8 - 1,250 - 34,331 6 - \$ 30,061 4 5 8,269 5 4,15					EXC. VAC	4 13 13 15 18	BUSINE		1600		1100 00000	100		The state of the s	
Sartin S			STATE OF THE PARTY OF	100	STATE OF TAXABLE	24.294	A COLUMN	-	1.0	39.064	4	16	8 296	5	4,13
Fluorepar Fluorepar None Fluorepar N		8		1,250	1.0										4,13
Distorable Nome N			-	150	description of	4,231	-	and the last	and the last		The second second	P019	115100	The same of the same of	1975
Peritia None None Verriscutific None Verriscutific None 166 - 4,291 \$ - \$ 4,135 0 \$ 8,290 \$ 4,15 Max 1 - 156 - 4,291 \$ - \$ 5,095,193 369 \$ 5,290 \$ 9,20 169			CONTRACTOR AND DESCRIPTION		1150000		40000		186		The state of the s	No.		MARCHEN STREET	
Vermicrific Noise				A SUST PORT SERVICE	BURNEY TO COM	S ASSESSMENT OF THE PARTY OF TH	STATE OF H		1000		BE 1000007	1000		SS2990053	
Mics 7 - 1566 - 4,291 5 - \$ 4,135 0 5 9,290 5 4,1 Kyanto None 322 5 - \$ 51,850 5 - \$ 3,107,052 \$ - \$ 3,085,192 369 \$ 5,289 \$ 9,2					1.30	- Comments	60000		100		BOSE NO.			MARKET NO.	
MCs None None None State None Sta		None	THE RESERVE OF THE PARTY OF	150	PERSONAL PROPERTY.	4 201	18	-	1 8	4 135	0	15	8,296	5	4,13
Total 382 5 - \$ 51,858 5 - \$ 3,107,092 \$ - \$ 3,095,193 369 \$ 6,299 \$ 1,0		123912	-	100	Name and Address of the Owner, where	THE PERSON NAMED IN	NAME OF TAXABLE PARTY.	MINERS.	diam'r.	THE RESERVE TO SERVE THE RESERVE THE	STATES OF THE STATE OF THE STAT	A00000000000	THE REAL PROPERTY.	NAME OF TAXABLE PARTY.	STATE OF THE PARTY OF
	Kyanite			61 000		8 9 107 092	15		15	3.085.193	361	\$	5,289	\$	9,20
	Total	332					Lati		1.7	2,244,144		all soften	-		
											Mary		5/9/6		

Fugitive Testing: Fugitive Monitoring:

initial M9 Daily water flow check for water sprays M9 every 5 years for all affected facilities

Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO

Fugitive variation B

Mineral type	No. new model plants	Baseline capital cost		Baseline annualized cost		-revision tal cost				rence in al cost		erence in uslized cost	Potential emission reduction,* tpy		ential cost ctiveness (\$/ton)	Difference cost per p	in annualized ant
Crushed & Broken stone	96	\$	915,200	5 528,275	1.5	457,600	\$	6,476,325	8	(457,600)	3	6,148,051	121	\$	50,958	\$	64,04
and & Gravet	TO VANDA TO			The state of the s			2000				Sur			100	The state of the s		
Construction	206	\$	1,982,933	\$ 711,262	\$.991,467	\$	14,032,038	5	(991,467)	S	13,320,777	261	5	50,958	S	64,04
Industrial	1	S	9,533	5 3,420	5	4,767	5	67,462	\$	(4,767)	5	64,042	1	S	101,917	\$	64,0
làys.	1	No.		CONTRACTOR OF THE PARTY			37				Bir		NAME OF TAXABLE PARTY.	100			
Kaolin	Nane	Section 1975			100		1000		150		13.0			NES:			
Firectay	None	State of the last		CONTRACTOR SOR	1000		1000				100		STATE OF THE PARTY.		A STATE OF THE PARTY OF THE PAR		
Bentonite	1	8	74,700	\$ 19,320	8	63,000	5	20,590	\$	(11,700)	8	1,270	1	S	2,233	8	1,27
Fuller's earth	4	5	298,800	\$ 77,281	5	252,000	5	82.380	\$	(48,800)	3	5.080	2	\$	2,233	S	1,27
Boll Clay	1	5	74,700	\$ 19,320	8	63,000	18	20,590	\$	(11,700)	5	1,270	1	8	2,233	\$	1,27
Common Clay	None				Hodes		100				-						
lock Sall/Spokum Chloride		5	74,700	\$ 19,320	5	63,000	5	20,590	\$	(11,700)	\$	1,270	1	\$	2,233	5	1,27
Synesem	7	\$	522,900	\$ 135,241	5	441,000	5	144,131	\$	(81,900)	5	8.889	4	8	2,233	\$	1,27
locium Carbonata	3	5	99,600	\$ 25,396	8	84,000	\$	27,092	5	(15,600)	5	1,697	2	\$	685	S	1,69
odum sulfate	Nane				1000		100		R		250		NAME OF TAXABLE PARTY.				
umine	2	-5	149,400	5 38,640	S	126,000	3	41,180	\$	[23,400]	5	2.540	1	\$	2.233	5	1.2
Asonite	Nans.	A section		Commission Terrorise	distance of		1000		1000		100	interes.	AND WATER OF THE PARTY OF THE P	1000	THE RESERVE OF THE PARTY OF THE		
alc and Pyrophyllite	None	A STATE OF THE STA			100		180		1930		130						
laron	None						1										
arte	- 8	\$	597,600	\$ 154,562	S	504,000	5	164,721	\$	(93,600)	5	10.159	4	5	2.548	\$	1.27
Biorspan	1	\$	74,700	5 19,320	8	63,000	\$	20.590	5	(11,700)	8	1,270	0	\$	3,891	\$	1,27
eldspar	None	Webber 1			A STATE OF		1000	USCANORISM NAME	100		100	DESCRIPTION OF	STREET, STREET	1000	THE PARTY OF THE P		
latomite	None	The Court			100		TIE.								200		
erite	Nane	The state of			-		1000				100			1			
ermiculite	Nane	AND DESCRIPTION OF THE PERSON			100		100				100			200			
9ca	1	\$	74,700	5 19,320	\$	63,000	5	20,590	5	(11,700)	5	1.270	0	\$	2,548	5	1,27
Kyanite	None	17			-		STATE OF THE PARTY.	- A - A - A - A - A - A - A - A - A - A	1333E		100	The second state of		NO.			THE RESERVE
otal	332	S	4.949.467	\$ 1,570,676	S	3 175 833	2	21,138,260	8	(1,773,633)	8	19.567,564	399	\$	49,033	8	58.93

382 Mg/yr

Fugitive Testing; Fugitive Manitoring:	M9 every 5 years	check for water sprays for all affected facilities		Stack Testing: Stack (BH) Monit	oring:		M5. Omit M9. terly 30-min M				SCEN	ARIO:	Fugitive var	lation B
Summary of Nationwide Testi Mineral type	No. new model plants	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost		rence in		rence in valized cost	Potential emission reduction,* tpy		tial cost ivenesa (\$/ton)	cost per pla	
Crushed & Broken stone	96	-	14,995		6,454,332	8	467,600	\$	6,439,337	121	5	52,373	S	67,076
Send & Gravel	The state of the s		1 50101	10000	M. Salamana	100		NO.		OVER STATE OF THE PARTY OF THE	William .	Territory and the second		WENT
Construction	208		32,489		13,984,387	\$	991,467		13,951,898	261	5	53,373	S	67,076
Industrial	1		156	4,767	67,233	5	4,767	15	67,076	1	5	106,746	5	67,079
Clays	1000			1000	-	1000		100		PERSONAL PROPERTY.	2000			
Kapin	None -		VE STONE STONE	100000000000000000000000000000000000000		1000		4155					20000	
Fireday	None	CHARLES SOUTH	ESASTA STATE	The state of the s	SOUR SUPERING CO.	1000	The state of	\$1555		100 CO 10	1000	ELS MIDER	Name and Address of the Owner, where	100000
Bentonite	1		156	+	4,291	\$		8	4,135		5	7,272		4,13
Fuller's earth	4		625		17,165	\$		3	16,540	2	\$	7,272	8	4,13
Ball Clay	1		156		4,291	\$.		15	4,133	1	5	7,272	5	4,13
Common Clay	None				THE RESERVE OF THE PARTY OF THE	100	The state of the s	100		AND DESCRIPTION OF THE PARTY OF	1			
Rock Sal/Sodium Chloride	1		156		4,291		*1	15	4,135		\$	7,272	5	4,135 4,135
Gypsum	7		1,093		38,039	\$	*	15	28,946		5	7,272		9,130
Sodium Carbonate	1		150		5,670	1		15	5,513	2	5	2,225	3	5,51
Sodium sulfate	None		AND PART OF THE REAL PROPERTY.		No. of Concession, Name of Street, or other Persons, Name of Street, or ot	100		4000			1		And in case of	
Pumice	2		312		8,583	. 5	**	15	8,270	1	5	7,272	5	4,13
Gilepnile	None			Cherry Control		2000		100			-		\$ 500 500	
Talc and Pyrophyllite	None	THE RESERVE OF THE PERSON NAMED IN	PART CONTRACTOR	1978 m - 1880	ALC: SHIPE	100				ESISTE DE SAN	1223		1	
Boron	None	10000		THE REAL PROPERTY.		100		3000		THE SHARES	1	THE RESERVE OF THE PARTY OF	No. of Concession,	THE RESIDENCE OF THE PARTY OF T
Borito	8		1,250		34,331		***	1 5	33,081	4	8	8,296	5	4.13 4.13
Fluorepar	1		158		4,291	3		5	4,135	.0	13	12,671	9	4,13
Feldspar	None	DOWNERS /	A CONTRACTOR OF THE REAL PROPERTY OF THE REAL PROPE	THE RESERVE	B S H	1000		1100			100		OR COLOR	
Diatomita	None	STATE OF THE STATE	THE RESERVE OF THE PARTY OF THE		E DECEMBER OF THE	1833		100			(293)		RATE OF THE PARTY	
Perlite	None	State of the land	The second second second	100000000000000000000000000000000000000	THE REAL PROPERTY.	100		3 199		P. Sales Street	1035		1	
Vermiculite	None	SHIP I WAS	A STATE OF THE STA	ALC: NO THE	COLUMN TO SERVICE		10 15 15 15 15 15 15 15 15 15 15 15 15 15	400	PARTY AND INCOME.	PHONE STORY	10000	1000	4300 E	4,13
Mica	1		156		4,291	5		8	4,135	0	\$	8,296	5	4,13
Kypnite	None			1	-	1		300	The same of the last		1		A STATE OF	***
Total *Potential emission reduction a	332	9 .	5 51,856			1.5	1,453,833	18	20,571,338	399	1 5	51,548	1.5	61,96

Summer

Fugitive Testing: Fugitive Monitoring: Initial M9 Weekly water flow check for water sprays M9 every 5 years for all affected facilities

Stack (BH) Monitorin

Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO:

Fugitive variation C

Mineral type	No. new model plants	Baseline capital cost	Beseline annualized cost		ost-revision apital cost	Post-revisi annualized					erence in malized cost	Potential emission reduction,* tay	Potential co offectivenes		Difference in cost per plan	vf .
Crushed & Broken stone	96	\$ 915,2	00 \$ 328,7	75 1	457,600	\$ 1.4	67,761	\$	(457,600)	5	1,139,487	119	\$	9,599	5	11,070
Sand & Gravet			A SAN DE LA SAN					and the same		100		Committee of the commit				
Construction	208	\$ 1,982,8	33 8 711,3	82 5	\$ 991,467	5 3.1	80,150	5	(991,467)	8	2,468,888	257	S	9,599	5	11,87
(industria)	1	\$ 9,5	83 \$ 3,4	20 1	4,767	5	15,289	8	(4,767)	8	11,870	1	5	19,198	8	11,87
Clays		100	A STATE OF THE PARTY OF	000		216				1		Control of the last of the las	Branch Charles			
Kaalin	None	The second section in the second	THE PARTY NAMED IN	335						No.		STATE OF STREET	Total State			
Fineday	None			676		A PROPERTY.				Hill						
Bentonite		\$ 74.7	00 8 19,1	20 1	\$ 63,000	5	20.590	5	(11,700)	3	1,270	1	\$	2,233	\$	1,27
Fuller's earth	4	\$ 298,8			252,000	5	82,360	5	(46,800)		5,080	2	3	2,233	\$	1,27
Ball Clay	1	\$ 74.7	00 5 19.	20 3	63,000		20.590		(11,700)		1,270	t t	\$	2,233	5	1,27
Common Clay	None	HISTORY SHOWING STATE		ilia in	THE RESIDENCE	-		10071		SUBS	WEST CONTRACTOR	Philipped Company of the	CITY CONTRACTOR	THE PERSON NAMED IN	CAN SOLUTION	
Rock Salt/Sodium Chloride	Y	\$ 74.7	00 5 19,3	20 8	\$ 63,000	5	20,590	5	(11,700)	8	1,270	1	\$	2,233	5	1,270
Gypsum	7	\$ 522.9	00 5 135,2	41 3	441,000	5 1	44,131	\$	(81,900)	5	8,889	4	\$	2,233	\$	1,270
Sodium Carbonate	1.	\$ 99.8	00 8 25.5	96 3	84,000	5	27.002	\$	(15,600)	3	1,697	2	\$	685	8	1,697
Sodium sulfate	None	CITEDRAL RESERVE	THE RESIDENCE	UC B		STATE OF THE PARTY OF	06451010	1000		100		THE REAL PROPERTY.	NEWSTRONES.	RESERVABLES	HEWENDLINGS	STREET, STREET
Putrice	2	5 149.4	00 \$ 38,6	40 1	126,000	\$	41,180	5	(23,400)	3	2,540	1	\$	2,233	5	1,270
Gilsonlin	None	STATE OF THE PARTY	THE RESERVE OF THE PARTY OF THE	HOUR C	STATE OF TAXABLE	ALC: NO. OF PERSONS ASSESSED.	prophosos;	SECTION 1	and the same of	BACOS	100000	COLUMN TO STATE OF THE PARTY AND ADDRESS OF TH	ORD STREET	SETTING PROPERTY.	No. of Concession, Name of Street, or other Persons, Name of Street, or ot	The state of the s
Talc and Pyrophylilla	None			33 K						100		THE RESERVE				
Boron	None									175						
Berito	8	\$ 597.6	00 \$ 154,6	62 5	\$ 504,000	3 7	64,721	5	(93,600)	5	10,159	- 4	\$	2,548	8	1,270
Fluorepar	1	5 74.7	00 5 19,3	20 \$	63,000	5	20,590	S	(11,700)	8	1,270	0	\$	3,891	8	1,270
Feidapar	None		THE RESERVE TO SERVE THE PARTY.	0000	ACCUSED NOT THE	12000000		ASSESS.		100	No. of Concession, Name of Street, or other Designation, or other	EVENTARISM N	10/10/19/10		HIDERPASSE	STREET, SQUARE
Diatomite	None		P. Combined to the second	538						Sec.						
Perlite	None		O Proposition of the last	36						110		STATE OF THE PARTY	Partie and			
/ermiculite	None	SERVICE PROPERTY.	St. St. St.	39						F 50			SET BY			
Mica	1	\$ 74,7	00 \$ 19,3	20 5	63,000	5	20,590	5	(11,700)	\$	1,270	0	\$	2,548	5	1,270
Kyanites	None	The state of the s		2200		27				1000			1000			
Total	332	5 4,949.4	7 5 1,570.6	76 3	3 175 833	5 52	25,636	5	(1.773.633)	1.5	3.654.959	393	2	9.302	5	11.000

[Total] 332 | 5 4,949,497 | 5 1,570,679 | 5 3,175,633 | 5 5,
*Potential errisation reduction associated with increased testing and monitoring (based on potential entiasions from mailtunctioning controls)

356 Mg/yr

Fugitive Testing: Fugitive Monitoring:	M9 every 5 years	w check for water sprays s for all affected facilities		Stack Testing: Stack (BH) Monit	oring:		M5. Omit M9. orly 30-min M				SCENARIO:	Fugitive variation C	
Summary of Nationwide Test Mineral type	No. new model	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Differe	ence in		rence in ualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$/ton)	Difference in annualiz	100
Crushed & Broken stone	96		14,996	457,600	1,445,769	8	457,600	\$	1,430,774	119	\$ 12,053	5	14,90
Sand & Gravel:	The same of the sa		1		A SECTION AND A SECTION ASSESSMENT	100	a subsection	4900	DOWN THUS	STATE OF THE PARTY OF		STATE OF THE PARTY	55000
Construction	208		32,489	991,467	3,132,499		991,467		3,100,009		\$ 12.063		14,90
Industrial	1		158	4,767	15,060	\$	4,767	\$	14,904	1	\$ 24,105	5	14,90
Clays	11000	10/100000000000000000000000000000000000			All Pitelines	100/00		100					
Kaolin	None			CHECK CO.	1000000	ASSOCIATION OF THE PARTY OF THE		100			The state of the state of	THE RESERVE AND ADDRESS.	
Firectay	None	THE CHAPTER STREET	A COLUMN TO SERVICE SE	CONTRACTOR OF STREET	E 2250000000	ALC: U	100000	No.			100		4.42
Bentonite	1		166		4,291	8	- 5		4,135		\$ 7.272 \$ 7.272		4,13
Fuller's earth	4		625		17,165	5		3	16,540	2	8 7,272		4,13
Ball Clay	10		156		4,291	15_	-	13.	4,135		5 7,212		10000
Common Clay	None				NAME OF TAXABLE PARTY.	20000		BIGS	And the second	The same of the sa	\$ 7,271	Charles and the same of the sa	4.12
Rock Salt/Sodium Chloride	1		156		4,291	2	***	3	4,139 28,946		5 7,277		4,13 4,13 5,51
Gypsum	7	5 5	1,093		30,039	5		3	5.513		5 2,22		6.54
Sodium Carbonate	1		156		5,670	12	-	10	5,513	4	3 2,24		1000000
Sodium sulfate	None		The second second	No. of Concession, Name of Street, or other Persons, Name of Street, or other Persons, Name of Street, Name of	STREET, SQUARE, SQUARE	Name of		100	8,270	-	5 7.277		4,13
Pumice	2	The second second	312	-	8,583	1	-	4000	0.270	NAME AND ADDRESS OF THE PARTY O	CHARLEST STREET, STREE	THE RESERVE THE PERSON NAMED IN COLUMN	STORY.
Gilsonite	None	CONTRACTOR OF THE PERSONS	SOUTH REPORT	10000 PG	(C. C. C	4000		15			EDITOR FOR STATE OF		
Talo and Pyrophylite	None	A THE RESERVE		1000 HOLD TO 1000	12 20 20 20	1000		100				N 19 19 19 19 19 19 19 19 19 19 19 19 19	
Boron	None	The state of the s		-	34,331	10		100	33,081	-	\$ 8,290	1 5	4,13
Barite	a		1,250		4,291	1.			4,135		\$ 12,67		4,13
Fluorspar			126		4,251	No.	MATERIAL PROPERTY.	100	4,100	Name and Address of the Owner, where the	100	ON PERSONAL PROPERTY.	1000
Feldspar	None	THE RESERVE OF THE PARTY OF THE	THE RESERVE OF		6 10 10 mm 10 mm	3112				Maria Control	DOLLES SON TON	A LOCAL DESIGNATION OF THE PARTY OF THE PART	
Distamile	None	The second second	THE RESERVE THE PARTY OF THE PA	P. C. Control		19600		100		BURNEY CONTRACTOR			
Perlita	None			AND DESCRIPTIONS	THE STATE OF	1800		100		A STATE OF THE STA	\$100 miles 100 miles	B 25 2 1 1 1 1 5 1	
Vermiculite	None	10000	156	Name and Address of the Owner, where the Owner, which is the Owner, where the Owner, which is the Owner, where the Owner, which is the Owner, which i	4.291		-	8	4,135	0	3 8.29	5 5	4,13
Mica			150	Contract of the last	4,201	Name and	MARKET PARTY	nistro	POLITICAL DESIGNATION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS N	THE PROPERTY OF THE PARTY OF TH	THE RESERVE AND PERSONS ASSESSED.	Company of the Party of the Par	AUTOMOS
Kyanile	None 332	Property of the Park of the Pa	\$ 51,856	\$ 1,453,833	\$ 4,710,571	18	1.453.833	18	4,658,713	39	5 11,85	7 5	14,03
Total		15 -					1,120,000	-	1,4900,111		11.000		

Total 332 1,000 1 (0.03.833 1

356 Mo/et

Fugitive Testing: Fugitive Monitoring:

Initial M9

gal M9 onthly water flow check for water sprays Stack Testing: Stack (BH) Monitor Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO:

Fugitive variation D

Mineral type	No. new model plants	capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Difference in capital cost	Difference in annualized cost	Potential emission reduction,* tpy	Potential cost effectiveness (\$fton)	Difference in annualized cost per plant
Crushed & Broken stone	96	\$ 915,200	\$ 328,276	\$ 457,600	\$ 516,134	\$ (457,600	\$ 187,860	111	\$ 1,692	\$ 1,95
and & Grevet			Control of the State of the Sta	STOLEN SHOW THE ST		100000000000000000000000000000000000000	- Vietexes		THE PERSON NAMED IN	CONTRACTOR OF STATE O
Construction Industrial	208	5 1,987,933 \$ 9,533	\$ 711,262 \$ 3,420	\$ 991,467 \$ 4,767	5 1,116,291 5 5,376				\$ 1,692 \$ 3,384	\$ 1.95 \$ 1,95
HAVE -	CHARGOS STRATEGO	3 1,000	3/120	4,707	a spart	\$ 79,100	7 4	MODES TO SHIP OF	3,004	The second second second second second
Kaolin	None		NO PLANT	THE REAL PROPERTY.		200				
Firectay.	None	CHARLEST CHILDREN	The state of the last of the l	Australia de la constitución de		NAME OF TAXABLE PARTY.	A STATE OF THE PARTY OF THE PAR		THE SECOND	
Bentonite	1	\$ 74,700		\$ 63,000		\$ (11,700) \$ 1,270	1	\$ 2,233	\$ 1,27
Fuller's earth	4	\$ 298,800		\$ 262,000		\$ (46,800	\$ 5,086 \$ 1,270	2	\$ 2,233	\$ 1,27 \$ 1,27
Ball Clay		\$ 74,700	\$ 19,320	\$ 63,000	\$ 20,690	\$ (11,700	1 3 1,273		\$ 2,233	3 1,27
Common Clay tock Salt/Sodium Chloride	None	\$ 74,700	\$ 19,320	\$ 63,000	\$ 20,590	5 MARIE 181	1 5 1,270	RESIDENCE DE SENTENCIER DE LA CONTRACTOR D	\$ 2.233	\$ 1,27
	1 2	\$ 522,900		\$ 441,000			1 5 8.88		\$ 2,233	\$ 1,27
Sypeum iodium Carbonate	1 2	\$ 99,600							\$ 695	\$ 1.69
locium carbonate locium sulfate	None	3 99,500	a 25,390	5 04,000	5 27,0002	5 (15,000	1,000	CONTRACTOR OF THE PARTY.	9 000	3 1,09
rodem summe Iumipe	2	\$ 149,400	\$ 38,640	8 126,000	5 41,180	\$ (23,400	8 2.540	The same of the same of	\$ 2,233	\$ 127
Mannite	None	140,400	30,040	120,000	41,100	Contract of the Contract of th	2,04	A STATE OF THE PARTY OF THE PAR	Million and the second second second	NAME AND ADDRESS OF THE OWNER, WHEN PERSON O
alc and Pyrophyllite	None		· · · · · · · · · · · · · · · · · · ·	100000000000000000000000000000000000000		-	3000			
karen	None	White State of the	W - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -							
iarile	В	\$ 597,600	\$ 154,562	\$ 504,000	\$ 164,721	\$ (93.600	\$ 10,159	4	\$ 2,548	\$ 1.27
huorspar	1	5 74.700								5 1,27
eldspar	None		CONTRACTOR AND ADDRESS OF	The state of the state of	THE RESERVE		The same of the sa	STATE OF THE PARTY	TOTAL VIOLENCE OF THE PARTY.	THE RESERVE OF THE PARTY OF THE
Vistomite	None		SHIMESERSHE	ESCHOOL STA		NEED TO SERVICE STATE OF THE PARTY OF THE PA			HERE THE RESERVE	
Portition	None			Comments of	the same of the sa	-		Coolings size		
ermiquite	None		CE CONTRACTOR OF THE SECOND			Local Park	THE RESERVE TO SERVE			THE RESERVE THE PARTY OF THE PA
fica	1	\$ 74,700	\$ 19,320	\$ 63,000	\$ 20,590	\$ (11,700	\$ 1,270	0	\$ 2,548	\$ 1,27
Cyanite	None	The state of the s	1241	-	- Alexander	0 -0	Control of the contro	The second second		Market Harris
otel	332	\$ 4,949,467	\$ 1,570,676	\$ 3 175,833	5 2.202.237	\$ (1.773.633	5 631.560	309	5 1.713	5 1.900

Potential emission reduction associated with increased testing and monitoring (based on potential emissions from malfunctioning control

334 Mg/yr 1889 5/Mg

Fugitive Testing: Fugitive Monitoring:	MB every 5 years	w check for water sprays for all affected facilities		Stack Testing: Stack (BH) Monit	oring:		M5. Omit M9. orly 30-min M	22.			SCENAR	tio:	Fugitive variation	on D
Summary of Nationwide Test Mineral type	No. new model		Baseline Banualized cost	Post-revision capital cost	Post-revision annualized cost	Differ			erence in ualized cost	Potential emission reduction,* tpy	Potential	cost ness (\$/ton)	Difference in ar	
Crushed & Broken stone	96		14,995	457,800	494,141	8	487,600	\$	479,145	111	\$	4,315	\$	4,89
Sand & Gravel	THE REAL PROPERTY.	42			The second second	THE REAL PROPERTY.		1000	ENGLISH RES	7/10/11	100		THE RESERVE	the state of the s
Construction	208		32,499	991,457	1,070,640		991,467	5	1,038,150	241	5	4,315		4,99
Industrial	1	3 4	156	4,767	5,147	\$	4,767	5	4,991	1	\$	8,630	5	4,99
Clays	-	The state of the s		A BANKS		1000		1100		DESCRIPTION OF THE	1000		P. Jakobson	
Kaolin	None			150.550	1000000	1850		1100		St. 1000100	P. Callell			
Fireclay	None	The state of the s	THE SAME OF SAME OF SAME		THE REAL PROPERTY.	4000		2000	The state of the s		Section 2	DESCRIPTION OF THE PERSONS	1	12000
Bentonite	1		156		4,291	\$		8	4 135	1		7,272	8	4,130
Fuller's earth	4		625		17,185	5		8	16,540	2	S	7.272	5	4.130
Ball Clay	1		156		4,291	15	-	3	4,135	1	2	1,2/2	3	4,120
Common Clay	None			THE RESIDENCE	THE SECOND		EWHER WISH	P			Name and	-	No. of Concession, Name of Street, or other Persons, Name of Street, or ot	440
Rock Sall/Sodium Chloride	1		158		4,291			5	4,135		8	7,272	5	4,13
Gypsum	7	1.75	1,093		30,039			\$	28,946	166	5	7,272		5,513
Sodium Cerbonate	1		156		5,670	5		18	5,513	2	5	2,225	3	5,51
Sodium sulfate	Nane			ACCOUNT NAMED IN	The state of the last of the l	1000	177	ę.		CONTRACTOR OF THE PERSON NAMED IN	Name and	7,272	S	4,13
Pumice	2		312		8,583	5	-	13.	8,270	-	5	1,212	3.	4,10
Gitsonite	None			BOSTON STATE		100		100		ASSESSED FOR STATE OF	10000			
Tale and Pyrophyllite	None			NEWS BUILDING	DO THE STREET	100		100		ENGINE AND	1000		FILE STATE OF THE PARTY OF THE	
Boron	None			The state of the s		1000		1000	33,081	4	-	8.296	5	4,13
Barite	8		1,250		34,331 4,291		-	3	4,136	0		12,671		4,13
Fluorapar	1		156	-	4,291	1.5	and the same	12	4,130	The second second	Name and Address of the Owner, where	12,017	-	100000000000000000000000000000000000000
Feldspar	None		A STATE OF THE PARTY OF THE PAR	THE RESERVE	E DOLLAR	10.00		489		THE PERSON NAMED IN	-800		12-750 SSA	
Diatomila	None		The state of the s	THE RESERVE	IN STURMED	1888		1100		S. CHESTON STATE	17555		C-250 (445)	
Perite	None			THE SECTION AND ADDRESS.	SERVICE STATE	100		163			F. 1975		1000011575E	
Vermiculite	None		SALES OF THE SALES		4,291	-		17	4,135	-	S	8.296	1 .	4.13
Mica	Contract Contract		156	The same of the sa	9,281	-	STREET, SQUARE,	and the	4,122	CONTRACTOR STREET	NAME OF TAXABLE PARTY.	0,200	CHIEFCOCOCCUPE	Total winds
Kyanite	None		\$ 51,858	\$ 1,453,833	S 1,687,173	1.	1,453,833	-	1,635,315	30	S	4.437	1 5	4.92
Total	332	15 .				1.4	1,992,000	14	1,885,910	- 40	1.0	7,091	- Indiana	1,000
*Potential emission reduction a	ssociated with incre	ased testing and monitoring	(bases on poiential emissio	is room meaturication	ing contros)					334		4891		
										Mg/y		SAMO		

Fugitive Testing:

Initial M9

fonthly water flow check for water sprays

Stack Testing: Stack (BH) Monitor Initial M5. Omit M9. Quarterly 30-min M22 SCENARIO:

Fugitive variation E

Mineral type	plants	Sasaline capital cost		Baseline annualized cost	Post-ren capital o	ost		fized cost	capit	al cost	Difference	cost	Potential emission reduction,* tpy	Potential c effectivens	rss (\$/ton)	Difference in cost per plan	nt
Crushed & Broken stone	96	\$	915,200	\$ 328,276	\$	457,600	8	933,680	\$	(457,600)	\$	805,405	111	8	5,452	5	6,306
Sand & Gravni	建	Mary Control			2000		100		聯軍		Contraction (amisoner					Manual mil
Construction	208	5	1,982,933	\$ 711,262	\$	991,467	5	2,022,972		(991,467)		311,711	241	5	5,452	5	6,300
Industrial	1	\$	9,533	\$ 3,420	\$	4,767	5	9,726	5	(4,767)	\$	6,306	1	S	10,904	\$	6.300
Clayse		To be desired			A STREET		A COURT		MEE				The same of the last	Andrews .		Contraction of the last	
Kaolin	None	AND THE PERSON NAMED IN		STATE OF THE PARTY OF THE PARTY OF	0.000		1000				METERS 19			E 25 E		ASSESSMENT NO	
Fireday	None	100000000000000000000000000000000000000		AND DESCRIPTION OF THE PARTY OF	-		Heat,		-		STREET, ST.						The second
Bentonite	. 1	\$	74,700	\$ 19,320	5	63,000		20,590	S	(11,700)	\$	1.270	.1	8	2,233	\$	1.270
Fuller's parth	4	5	298,800	\$ 77,281	\$	262,000		62,360		(46,800)	\$	5.080	2	5	2,233	\$	1,270
Ball Clay	1	5	74,700	\$ 19,320	\$	63,000	S	20,590	\$	(11,700)	\$	1.270		\$	2,233	5	1,270
Common Clay	None	TOXEL COMES		CONTRACTOR OF THE PARTY OF THE		WELL TO					M D		THE RESERVE THE PARTY OF THE PA	STATION OF STREET		Name of the last	
Rock Salt/Sodium Chloride	1 1	5	74,700	\$ 19,320	\$	63,000		20,590		(11,700)		1,270	1	\$	2,233	\$	1,270
Gypsum	7	S	522,900	\$ 135,241	\$	441,000		144,131		(81,900)		8,889	4	\$	2,233	\$	1,270
Sodium Carbonate	1 1	1	95,600	\$ 25,396	5	84,000	5	27,092	5	(15,600)	\$	1,697	2	\$	685	\$	1,697
Sodium sulfate	None	20 US 20 US	10 1926	CONTRACTOR OF THE PARTY OF THE	135		10000		3768		STATE OF THE PARTY		50mm=2/5005				第2 号
Pumlor	2	8	149,400	\$ 38,640	5	126,000	8	41,180	8	(23,400)	5	2.540	1	8	2,233	\$	1,270
Glagnite	None	4509 = 1		NAME OF TAXABLE PARTY.	330111		5000		1000		SECTION SECTION			STATE OF THE			
Talc and Pyrophyllite	None				00000				1030					1290056			
Boran	None	ESCHOOL SEC	Carried Street		CHES	and the same	E75	-normalia		- Williams	HE HEART		STATE BUT IN THE			A STATE OF THE PARTY OF THE PAR	
Barrie	- 8	5	597,600	\$ 154,562	5	504,000		164,721	5	(93,600)		10,159		5	2,548	\$	1.270
Fluorspar	1	5	74,700	\$ 19,320	5	63,000	8	20,590	8	(11,700)	\$	1,270	0	8	3,891	\$	1,279
Feldspar	None				Parties.		BILL		100				CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	ACCEPTANT		The state of the s	
Distomile	None	0.00000		COURT IN PRINCIPLE	1000									A45 (A56)			
Perito	None	Section 1		THE RESERVE AND ADDRESS OF THE PARTY OF THE	-		100				A CONTRACTOR OF THE PARTY OF TH			Contract of		In the later of the later	
Vermiculite	None			THE RESIDENCE OF THE PARTY OF T	1		-							0.20.00		ACCUPANT OF THE PARTY OF THE PA	
Mice	3	3	74,700	\$ 19.320	\$	63,000	-8	20,590	8	(11,700)	5	1,270	0	\$	2,548	\$	1,270
Kyanite	None	197			The latest	-				Transfer Co	4			Name -	and the same	The state of	1
Total	332	15	4,949,467	\$ 1,570,676	5 3	175,833	1.5	3,528,813	S	(1,773,633)	S 1)	958,136	369	\$	5,313	\$	5,696

Potential amission reduction associated with increased testing and monitoring (based on potential amissions from malfunctioning control

334 Mg/yr

Fugitive Testing: Fugitive Monitoring:	Annual M9 for aff	w check for water sprays lected facilities with carryov	erlather fuglitive control	Stack Testing: Stack (BH) Mon	lloring:	Initial M5, Omit N Quarterly 30-min				SCENARIO:	Fugitive variation E
Summary of Nationwide Testi Mineral type	No. new model	porting, and Recordkeept Baseline capital cost	Baseline senualized cost	Post-revision capital cost	Post-revision annualized cost	Difference in capital cost		ifference in	Potential emission reduction,* tpy	Potential cost effectiveness (\$fton)	Difference in annualized cost per plant
Crushed & Broken stone	96	Capital Cost	14,995	-	733,054	8 .	3	718,059	311	5 6,467	\$ 7,48
Sand & Gravel	THE RESERVE			A MANAGEMENT	The second second		300	HEADEN VIN	THE RESERVE		
Construction	208		32,489		1,588,284	5 -		1,555,795	241		
Industrial	1		156		7,636	8 -	1.5	7,480	1	\$ 12,934	\$ 7.48
Clays:		STREET, STREET,		The state of			2241		TOTAL PROPERTY.		THE REAL PROPERTY.
Kaolin	None		1000			1770年日	200				
Firectay	None	CONSTRUCTION AND IN ASSESSMENT	A CONTRACTOR OF THE PARTY OF TH	THE RESIDENCE		NAME OF TAXABLE PARTY.	sopi	STORES NO.	THE REAL PROPERTY.	\$ 7,272	8 4,13
Bentonite	1		198		4,291		- 10	4,136	1		
Fuller's earth	4	95	625		17,165	1.	1111	\$ 18,540	2	5 7,272	
Ball Clay	1		156		4,291	8 .	-	\$ 4,135	-	5 7,272	4,14
Common Clay	None			SECOND SECOND	THE RESERVE	COLUMN TO SHAPE	mp,	4,135	AND DESCRIPTION OF THE PERSON NAMED IN	8 7,272	5 4,13
Rock Satt/Sodium Chloride	1		198		4,291		- 10	\$ 4,135 \$ 28,946		5 7,272	
Gypeum	7		1,093		30,039			\$ 5,513		5 2,225	5 5,31
Sodium Carbonate	1	-	166	Name and Address of the Owner, where	5,670	5	icensi	0,013	CONTRACTOR OF THE PARTY OF	122	331
Sodium sulfate	None	STATE OF THE PARTY	312		9 563	A STREET, SQUARE,	- 1	5 8,270		\$ 7,272	\$ 4,13
Purrice	2		312	-	8,563	AND DESCRIPTION OF THE PARTY OF	and i	5 5,270	A THROUGH STATE OF THE PARTY OF	STANDARD WASHINGTON	The second secon
Gilsonite	None	THE RESERVE OF THE PARTY OF THE		RESIDENCE OF THE PARTY OF THE P		1310 50			BARDY DESCRIPTION		THE STREET NO.
Talc and Pyrophyllite	None			SHESSHES !	Act was to be	13 785 755	100		PARTIE AND	And the section have	
Boron	None	The second second	1,250	7	34,331	8	1	\$ 33,081	4	\$ 8,296	
Barile Fluorspar		100	156		4.291		. 1	4,135		15 12.671	\$ 4,13
Feldspar	None	CARL STREET, SQUARE, SQUARE,	DEPOSITOR OF THE PARTY OF THE P	THE RESIDENCE	P. Carlotte Street, St	Control of the Park	milibi	1000	THE RESERVE OF THE PARTY OF THE		
Diatomite	None			MINISTER ESCO		The state of the state of	201		SECTION AND ADDRESS.		
Perite	None	Market Dilling and State of the		THE REAL PROPERTY.		100000				STATE OF THE PARTY	
Vermiculite	None	CONTRACTOR OF STREET		ST CHICA		100000	230		The state of the s	Maria Company	
Mica	1	-	156	-	4,291	\$	3	\$ 4,135	0	\$ 8,296	5 4,13
Kyanite	None	10 W			The second		-		E9779 NG-151	A - VIOLETTA - TOTAL	
Total	332	\$	\$ 51,658			5		5 2,394,360	36	5 6,496	\$ 7.21
*Potential emission reduction a	asocialed with incre	ased testing and monitoring	(based on potential emission	ns from malfunction	ning controls)				334 Mg/y		

Initial M9 Monthly water flow check for water sprays No repeat tests

Initial M5. Omit M9. Quarterly 30-min M22.

SCENARIO:

Fugitive variation G

Mineral type	No. new model plants	Baseline capital cost		Baseline annualized cost		revision si cost		revision alizad cost			Difference annualized		Potential amission reduction,* tpy	Potential cos effectivaness		Difference in cost per plan	THE THE PERSON NAMED IN
Crushed & Broken stons	96	\$	915,200	5 328,275	\$	457,800	\$	516,134	\$	(457,600)	5	187,860	111	\$	1,692	\$	1,967
Sand & Graves		Section 1	Company And	No. of the last	1000		SATE .	1 - 10 / W. Con /s	5,00	a distribution		SECRETARIA SEC	100	Law - Carlo		100	
Construction	208	8	1,982,933	\$ 711,262		991,467	\$	1,118,291	5	(991,467)		407,029	241	\$	1,662	5	1,957
Industrial	1	8	9,633	\$ 3,420	5	4,767	\$	5,376	8	(4,767)	8	1,957	1	8	3,384	5	1,95
Clays:	The Section of	Total State of		CONTRACTOR OF STREET	No.				Section 1				Service management				
Kaolin	None	HOLESE			1						The Walland					THE RESERVE	
Firectoy	None	SECULIAR SECTION	National Street	STATE OF THE PARTY	1			PARTY AND DESCRIPTION OF THE PARTY AND DESCRI	1000			STATE OF THE PARTY	State Inches	100000	-	The same of the sa	
Bentonite		3	74,700	\$ 19,320	8	63,000		25,590	5	(11,700)		1,270	1	S	2,233	8	1,270
Fuller's earth	4	5	298.800	\$ 77,281	8	252,000		82,360	5	(46,800)		5,080	2	5	2,233	8	1,270
Ball Clay	1	8	74,700	\$ 19,320	S	63,000	5	20,590	\$	(11,700)	В	1,270	1	5	2.233	5	1.270
Common Clay	None	NO PARKE	SMIRRORE	THE RESERVE OF THE PARTY OF THE	000		10000		ROPE TO	SECTION AND A	THE PASSED OF			STREET, STREET, ST	HEREST AND	CONTRACTOR OF THE PARTY OF THE	DOMESTIC STREET
Rock Salt/Sodium Chleride	3	8	74,700	\$ 19,320	.2	63,000		20,590	\$	(11,700)		1,270	1	8	2.233	5	1,270
Gypsum	7	3	522,900	\$ 135,241	8	441,000		144,131	5	(81.900)		8,889	4	5	2,233	5	1,270
Sodium Carbonate	1	5	99,600	\$ 25,396	5	84,000	\$	27,092	5	(15,600)	5	1,697	2	5	585	2	1,697
Sodium sufate	None	ARTHOUGH A PER		1	I I I I I I I I I I I I	STATE OF STREET	RECORD		10025	and the same of the last	Mariceso.	0.000	THE REAL PROPERTY.	Section in page	When meet all the	THE REAL PROPERTY.	1.270
Pumice Gilsonite	1. E.	5	149,400	\$ 38,640	15	126,000	5	41,180	2	(23,400)	5	2,540	1	3	2,233	5	1,2/0
	None	#			1150		13		TE A				CONTRACTOR OF THE PARTY OF THE				
Tolc and Pyrophyllile Boron	None	110		ELICITED STREET	11/25		11252				MARKET EST					Name of the last	
Barte	None		597 500	\$ 154.562		504,000		164.721	Section 1	(93 600)		10,159	STATE OF THE PARTY		2,548	Name and Address of the Owner, where	1.270
Fluorapar		3	74.700	\$ 19320		63,000		20,590	3	(11,700)		1,270	0	3	3,891		1.270
Feldsper	None	CONTRACTOR OF THE PARTY OF	74.700	3 19,360	100	52,000	motion	20,000	2	(11,700)	Consumer State	1,270	OF REAL PROPERTY.	Contraction of the last	2,081	The second second	TOTAL PROPERTY.
Diatomite	None				1000		2000						THE RESERVE TO BE			THE PERSON	
Parita	None	ALL LEG			1700						HE STATE		THE PROPERTY OF				
Vermiculita	None	No.			12.50												
Mica	140000	8	74,700	8 19,320	14	63.000	4	20.590	4	(11,700)	4	1,270	0	4	2.548		1.270
Kyanite	None	DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAME	.4,700	10,020	Name of Street	42,000	No.	20,000		121,700)	1100-1100	1,470			2,040	COCOUNTS	TO A SECRETARION
Total	332	S	4.949.467	\$ 1,570,676	18	3,175,633	8	2.202.237	5	(1.779.633)	6 7	631,580	360	5	1,713	's.	1,902

334 Mg/yr

1889 S/Mg

Fugitive Testing: Fugitive Monitoring:	No repeat tests	w check for water sprays		Stack Testing: Stack (BH) Moni	toring		65. Omlt M9 rly 3G-min N				SCENARK	D:	Fugitive varia	ntion G
Summary of Nationwide Test Mineral type	No, new model	Baseline capital cost	Baseline annualized cost	Post-revision capital cost	Post-revision annualized cost	Differe			ence in elixed cost	Potential emission reduction,* tpy	Potential o	ess (\$/lon)	Difference in cost per plan	st .
Croshed & Broken stone	96	- aprilations	14,995	-	315,509	8	le:	8	300,514	111	\$	2,708	\$	3,130
Send & Gravet	1 -500	W. Carlotte			10000	100	THE REAL PROPERTY.		- Access		A STATE OF THE PARTY OF THE PAR	-	A CONTRACTOR OF THE PARTY OF TH	STATISTICS.
Construction	208		32,489		663,603		100	8	651,113	241	5	2,706		3,130
Industrial	1	1900 0000 0000	156	110	3,287	8		5	3,130		S	5,413	5	3,13
Clays			THE RESERVE OF THE PARTY OF THE		S. S. S. S. S. S.	10000		1000		S REPORT OF THE PERSON NAMED IN	別是以何		1	
Kaplin	None				15005-5508F	Million		Bisson			100000		A STATE OF	
Fireclay	None		CARLES AND DESCRIPTION	No. of Concession,				1000			The same of	7,272	The same of the sa	4.13
Bentanite	1		156	1.0	4,291			8	4,135	THE RESERVE	8			4,13
Fuller's earth	4		625	4.5	17,165	5		5 -	16,540	2	5	7,272 7,272		4.13
Ball Clay	1	*	156		4,291	5		18	4,125	1	5	7,272	3	4,13
Common Clay	None	F. P. S.	RESIDENCE IN SCHOOL		E DIRECT CONTRACTOR	CONTRACT	The state of the s	diam	4.135	STREET, STREET	Name and Address of the Owner, where	7,272	THE REAL PROPERTY.	4,13
Rock Sait/Sodium Chloride	1		156		4,291	5		2	28,946		3	7.272		4,13
Gypsum	7	1 1 1 1 1 1 1	1,093		30,039			3	5,513	2		2 225		5,51
Sodium Cerbonate	1	and the same of th	156	-	5,670	12	-	13	5,513	The second second	A CONTRACTOR OF THE PARTY OF TH	2.223	-	2,31
Sodium sulfate	None		THE REAL PROPERTY.	DOMESTIC OF THE PERSON.	8 583	1	DESCRIPTION OF	1	8,270		5	7.272		4,13
Pumice	2		312		6,563	O CONTRACTOR	name to the	Name of	6,270	SAMPLE STREET,	The same of	THE REAL PROPERTY.	NAME AND ADDRESS OF THE OWNER, WHEN	THE REAL PROPERTY.
Gilsonite	None	I THE TAX SECTION		120000000000000000000000000000000000000	A STATE OF THE PARTY OF THE PAR	10000		1000		11 15 CO 16 TO F	Section of		INCOME.	
Talo and Pyrophylite	- None		A STATE OF THE PARTY OF THE PAR	A CONTRACTOR OF THE PARTY OF TH	100000000000000000000000000000000000000	100		1000		The state of the state of			LEED OF	
Boron	None	The state of the s	1,250	-	34,331	14	-	Acres 1	33,081	4	1	8.296	18	4,13
Barite	8	17 - 26	1,200		4,291		100		4,135		5	12,671		4,13
Fluorspar		THE RESERVE THE PERSON NAMED IN	100	THE RESERVE OF THE PARTY OF THE	The second second	Name of	THE RESERVE	ulasion.	and the second	CONTRACTOR DESCRIPTION	100	THE RESERVE TO SERVE THE PARTY OF THE PARTY	STATE OF THE PARTY OF	HE
Feldspar	None None	CONTRACTOR OF THE PARTY OF THE	THE RESERVE	100000000000000000000000000000000000000		1000		1		150 CO. W. W. W.	1930m		STATE	
Diatomite	None	The same of the same of the same of	Petronic Designation of the last	\$1345YSH6546		1000		5.8		CONTRACTOR OF THE PARTY OF THE	99333		2200 3300	
Pedite	None			THE WASTE	A PROPERTY OF	1		165			THE PROPERTY.		10000	
Vermiculite Mica	None	CONTRACTOR OF STREET	168	-	4.291	15	-	15	4.135		5	8,296	8	4,13
	None	-	100	STREET, STREET,	AND DESCRIPTION OF THE PERSON NAMED IN	100000	Service of	MARKET	NAME OF STREET	SHOW THE PERSONS	Market Co.		No. of Lot, Lot, Lot, Lot, Lot, Lot, Lot, Lot,	THE DESIGNATION OF THE PERSON
Kyanite Total	332		\$ 51.858	\$.	5 1,119,642	15		15	1.067.784	36	\$	2,897		3,21
1088	334		(based on potential emission		don posterie	100		-			Thursday, and		7.1	

Attachment 2

Summary of Permit Review to Identify Baseline Testing and Monitoring Requirements

Attachment 2

State: Summary of State permits reviewed

General Permits

OOO fugitive emission points:	Monitoring requirements and frequency (no. of permits)
Wet suppression	amount of water-daily (1) inspection of water system-weekly (1) application rate (1) frequency of application (1) NS (8)
OOO affected facilities not using wet suppression (e.g., water carryover, partial enclosure)	NS (11)
Repeat M9 testing frequency*	quarterly (1) NS (10)
Other testing/monitoring requirements of interest for NSPS affected facilities	opacity testing-every 5 years (1) VE-daily (1) NS (10)
OOO stack emission points:	
Baghouses	inspect-monthly (1) pressure drop-daily or continuously (1) NS (9)
Repeat M5 testing frequency*	NS (11)
Repeat M9 testing frequency*	weekly (1) NS (10)
Other testing/monitoring requirements of interest for NSPS affected facilities (or for other dry controls used on NSPS stacks)	VE-daily (1) NS (10)
4T2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NG

^{*}Does not include initial tests, only repeat tests.

NS = not specified or no requirements

Attachment 2, cont.

Minor Source Permits (or unspecified permit type)

OOO fugitive emission points:	Monitoring requirements and frequency (no. of permits)
Wet suppression	moisture content of sand-quarterly (1) moisture content of sand-every 3 rd operating day (1) moisture content- every 2 years (1) maintenance log of sprayer (1) visual checks of system-daily (1) NS (27)
OOO affected facilities not using wet suppression (e.g., water carryover, partial enclosure)	NS (32)
Repeat M9 testing frequency*	annual (4) daily (1) every 3 rd operating day (1) NS (26)
Other testing/monitoring requirements of interest for NSPS affected facilities	inspections-daily (1) VE-daily (1) NS (30)
OOO stack emission points:	
Baghouses	inspect bag integrity-semiannual (3) pressure drop-daily (4) NS (25)
Repeat M5 testing frequency*	annual (1) NS (31)
Repeat M9 testing frequency*	annual (5) semiannual (1) daily (1) NS (25)
Other testing/monitoring requirements of interest for NSPS affected facilities (or for other dry controls used on NSPS stacks)	VE-daily (2) scrubber inspection-annual (1) demonstrate negative pressure of baghouse (1) NS (29)

Attachment 2, cont.

Major Source (Title V) Permits

OOO fugitive emission points:	Monitoring requirements and frequency (no. of permits)
Wet suppression	VE-weekly (1) records of amount used (2) NS (23)
OOO affected facilities not using wet suppression (e.g., water carryover, partial enclosure)	NS (26)
Repeat M9 testing frequency*	annual (1) per permit (1) monthly (2) every 2 weeks (1) quarterly (1) NS (20)
Other testing/monitoring requirements of interest for NSPS affected facilities	VE-monthly (3) VE-weekly (1) VE-daily (2) NS (20)
OOO stack emission points:	
Baghouses Percet M5 testing frequency*	pressure drop-daily (4) pressure drop-weekly (1) pressure drop-continuously (3) inspections-daily (1) inspections-quarterly (1) inspections-weekly (2) inspections-semiannual (1) VE-daily (5) VE-weekly (1) VE-monthly (1) NS (13)
Repeat M5 testing frequency*	per permit (2) annual (1) NS (23)
Repeat M9 testing frequency*	per permit (1) annual (3) quarterly (1) every 2 weeks (1) NS (20)
Other testing/monitoring requirements of interest for NSPS affected facilities (or for other dry controls used on NSPS stacks)	VE-daily (4) VE-weekly (1) NS (21)

^{*}Does not include initial tests, only repeat tests.

NS = not specified or no requirements

Attachment 3

Bag Leak Detector Cost Output from the EPA CEMS Cost Model

Attachment 3

Carananana	~F	CEN	AC
Summary	OI	CEN	115

Analyzers	1111	BEFORE	AFTER	
CO	0		0	
SO2		0	0	
NOX		0	0	
HCI		0	0	
Mercury (and CO2/O2)		0	0	
CO2		0	0	
O2		0	0	
THC		0	0	
Monitors				
OPACITY		0	0	
FLOW		0	0	
PM (beta gauge)		0	0	
PM (light scattering; insitu)		0	0	
PM (light scattering; extractive)		0	0	
Bag leak detector				
Number of fabric filters to be monitored=		0	1	
Number of sensors=		0	1	
Summary of Costs				
First Costs	Labor	Test	ODCs	Total
Planning	710	0	0	710
Select Equipment	4,733	0	643	5,376
Support Facilities	0	0	665	665
Purchase CEMS Hardware	0	0	12,190	12,190
Install and Check CEMS	121	0	4,034	4,155
Performance Specification Tests	0	0	0	0
QA/QC Plan	739	0	0	739
QA/QC Fian	6,303	0	17,533	23,836
	E81. YESTOONS		S. Hillingshalls	
Annual Costs				
Day-to-Day Activities	2,822	0	0	2,822
Annual RATA	0	0	0	0
PM Monitor RCA	0	0	0	0
PM Monitor RRA	0	0	0	0
Cylinder Gas Audits (ACA/SVA for PM)	0	0	0	0
Recordkeeping and Reporting	168	0	0	168
Annual QA & O&M Review and Update	384	0	1,770	2,154
Capital Recovery	898	<u>0</u>	2,497	3,394
Total w/o capital recovery	3,374	0	1,770	5,144
Total w/o capital recovery	4,272	0	4,267	8,539
Total with capital recovery	4,2/2	U	4,207	0,339